PB87-230371

# Summary of Appropriate Analytical Methods for Appendix 9. Part 1 Survey of Data for Individual Compounds. Part 2 Supplementary Information on Selected Compounds

(U.S.) Environmental Protection Agency
Washington, DC

Jul 87

U.S. Department of Commerce
National Technical Information Service
NTIS

50272-101 NTIS

**REPORT DOCUMENTATION PAGE**

1. REPORT NO. N/A

2.

PB87-230371

4. Title and Subtitle
Summary of Appropriate Analytical Methods for Appendix IX; Parts I and II

5. Report Date July 1987

6.

7. Author(s)

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Office of Solid Waste, Waste Management Division
Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

13. Type of Report & Period Covered

14.

15. Supplementary Notes
This document lists information that supplements EPA Office of Solid Waste document #SW-846. Note: there are two parts to this document.

16. Abstract (Limit: 200 words)

Provides basic analytical information and references for constituents listed on Appendix IX to 40 CFR Part 264. Provides supplemental information to EPA Office of Solid Waste document #SW-846: "Solid Waste Testing Methods. References SW-846 and other analytical development documents. This document is in catalog format for each item on Appendix IX.

17. Document Analysis a. Descriptors

b. Identifiers/Open-Ended Terms

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA. 22161

c. COSATI Field/Group

18. Availability Statement
Release Unlimited

19. Security Class (This Report) Unclassified

20. Security Class (This Page) Unclassified

21. No. of Pages 602

22. Price PC $48.95

(See ANSI-Z39.18)

*See Instructions on Reverse*

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

# SUMMARY OF APPROPRIATE ANALYTICAL METHODS FOR APPENDIX IX

## Part I: Survey of Data for Individual Compounds

Office of Solid Waste
Environmental Protection Agency

July 1987

CONTENTS

Page

1.0 Introduction. . . . . . . . . . . . . . . . . . . . . . . . . 1

2.0 References Cited. . . . . . . . . . . . . . . . . . . . . . . 2

3.0 Summary of Procedures in References B-F . . . . . . . . . . . . 3

4.0 Groundwater Practical Quantitation Limit Calculations . . . . . 10

5.0 List of Analytes and Methods Reviewed . . . . . . . . . . . . . 11

6.0 Analytical Method Data Sheets for Individual Compounds. . . . . 18

## 1.0 INTRODUCTION

The Environmental Protection Agency has made a survey for key analytical information for each compound on the proposed Appendix IX and for certain other compounds which were being considered for possible inclusion. This survey was made to ensure that documentation on one or more analytical methods was available to the public for every analyte on Appendix IX. This effort was assisted by the Center for Hazardous Materials Research of Research Triangle Institute. Documentation sources consisted of the EPA report SW-846 (Test Methods for Evaluating Solid Waste, Physical/Chemical Methods) and five additional reports of recent research, as listed in the next section.

The approach was to prepare separate data sheets by analyte for each SW-846 method considered, and where applicable, for each type of detector reported. The ordering of the data sheets is by an alphabetical common name, usually the one used in the regulation. Unless otherwise specified, the reference pages cited in the data sheets are to EPA document SW-846. The other references are designated by the capital letters assigned in the next section.

## 2.0 REFERENCES CITED

A. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, November 1986.

B. Lucas, S. V., and R. A. Kornfeld. GC-MS Suitability Testing of RCRA Appendix VIII and Michigan List Analytes. February 20, 1987. Final Report prepared for USEPA/EMSL-Ci, under EPA Contract No. 68-03-3224, Work Assignment 1-04.

C. Engel, T. M., R. A. Kornfeld, J. S. Warner, and K. D. Andrews. Draft Final Report on Method 8270 Performance. November 7, 1986. Prepared for USEPA/EMSL-Ci under EPA Contract No. 68-03-3224, Work Assignment 1-08.

D. Summary Tables from Draft Final Report, EPA Contract No. 68-03-1760, Work Assignment 2-15, Validation of SW-846 Methods 8010, 8015, and 8020. Provided as Appendix D to transmittal letter from R. A. Kornfeld, Battelle Columbus Division to P. H. Friedman, EPA/OSW. February 13, 1987.

E. Dynamac Corporation. Final Report, Chromatographability and Extractability of Selected Appendix VIII Analytes, EPA Contract No. 68-01-7266. March 11, 1987. Prepared for P. H. Friedman, USEPA/OSW.

F. Parr, J. L., and K. D. Faust. Capability of EPA Methods 624 and 625 to Measure Appendix IX Compounds. Prepared by Rocky Mountain Analytical Laboratory for the American Petroleum Institute, January 7, 1987.

## 3.0 SUMMARY OF PROCEDURES IN REFERENCES B-F

### REFERENCE B - GC/MS SUITABILITY TESTING OF RCRA APPENDIX VIII AND MICHIGAN LIST ANALYTES

As a first step in a hierarchical scheme to demonstrate the suitability of present U.S. EPA analysis methods and/or develop new methodologies, the gas chromatographic (GC) separation and mass spectrometric (MS) detection characteristics of 328 toxic and/or hazardous organic materials were investigated. The analytes in question are the organic substances in the RCRA Appendix VIII listing, plus those on the "Michigan List" which have been proposed to be added to the Appendix VIII list. EPA priority pollutants were omitted from this work since they are already thoroughly characterized. Volatile and semivolatile analytes were tested using the GC/MS conditions specified in U.S. EPA Methods 8240 and 8270, respectively, as modified by the Contract Laboratory Program (CLP) protocol. These are equivalent to conditions described in the 3rd Edition of SW-846 and are given in Table 1. Reference analytes were obtained primarily from EPA repositories and secondarily from commercial suppliers. Standard mixtures of analytes were analyzed by septum injection onto the analytical column without any prior sample work-up procedures (i.e., extraction of semivolatiles from water and purge-trap-desorb analysis of volatiles were omitted).

For analytes that proved suitable for GC/MS analysis by Methods 8240 and 8270, the relevant characteristics for GC retention (retention time and relative retention index) and for MS detection (recommended quantification ion and confirmation ions with relative abundances and response factor relative to the internal standard) were reported. For analytes not detected by GC/MS, recommendations for future work were made.

TABLE 1. GC/MS ANALYSIS CONDITIONS (REFERENCE B)

| | Volatile analytes | Semivolatile analytes |
|---|---|---|
| GC | | |
| Column | 6 ft x 2 mm ID glass; packed with 1% SP-1000 on Carbopack B 60/80 (Supelco) | 30 m x 0.25 mm fused silica with 0.25 μ methyl phenyl silicone film (J&W DB-5) |
| Carrier | Helium at 30 mL/min, flow controlled | Helium, pressure controlled at about 3 psi (about 30 m/sec at room temperature) |
| Sample | 1.5 μL, injected through septum of GC injector | 2 μL injected splitless for 50 sec |
| Program | 45°C for 3 min, then program to 220°C at 8°C/min and hold for 15 min | Room temperature for 4 min, then program to 300°C at 8°C/min and hold for 10 min |
| Injector | 250°C | 300°C with fused silica evaporator cavity liner |
| MS | | |
| Mode | Electron impact at 70 eV; beam current about 0.3 mA | Electron impact at 70 eV; beam current about 0.3 mA |
| Scan | 35 to 260 amu, 2.0 sec per scan | 35 to 500 amu, 1.0 sec per scan |
| Transfer oven | 250°C | 300°C |
| Source temperature | Not controllable | Not controllable |

## REFERENCE C - DRAFT FINAL REPORT ON METHOD 8270 PERFORMANCE

The suitability of SW-846 Method 8270 for the determination of 166 Appendix VIII and Michigan list compounds was evaluated. The 166 compounds selected for this study include all semivolatile organic compounds on the reduced Appendix VIII list that are not priority pollutants, all semivolatile organic compounds in Appendix VIII and the Michigan list that were shown in Work Assignment 1-04 of this contract (Reference B) to be amenable to GC/MS analysis, and several additional compounds of interest to the Superfund program. Eleven compounds were eliminated from the original list of 166 compounds because they require derivatization prior to analysis by GC, are known to be unstable in water, or were not available. The extraction efficiency from water and 7-day aqueous stability of the remaining 155 compounds of interest were determined in triplicate. The compounds were combined in spiking mixtures to minimize the laboratory effort. Spiking mixtures were designed to eliminate coelutions and avoid compound interactions. Distilled water samples were spiked and analyzed immediately to assess compound extraction efficiencies. Additional distilled water samples were spiked, refrigerated for 7 days, and analyzed to assess compound 7-day aqueous stability. Compounds were extracted from water using a two-stage liquid-liquid equilibration, extracts were concentrated using Kuderna-Danish (K-D) techniques, and compound recoveries were determined by GC using a flame ionization detector (FID). The two-stage liquid-liquid equilibration procedure (one extraction under acid conditions and another extraction under basic conditions) was substituted for the six equilibrations specified in SW-846 Method 8270. A single exhaustive extraction performed using a larger volume of solvent provides equivalent compound recoveries with reduced laboratory effort. Flame ionization detection was substituted for the mass spectrometric detection specified in SW-846 Method 8270 to reduce time and costs by the use of automated analyses. Two instruments, an HP 5890 for acidic and neutral compounds and a Carlo-Erba 4160 for basic and neutral compounds, were used to reduce the possibility of compound interactions in the injector or on the analytical columns.

As noted above, the sample preparation and analysis conditions given in Method 8270 were not followed as written. First, a single acid and base extraction was used rather than the three sequential acid and base extractions called for in Method 3510, the appropriate SW-846 samples preparation method for groundwater samples to be analyzed by Method 8270. Second, the analysis technique was GC/FID not GC/MS. Although the GC/FID conditions used were equivalent to those in Method 8270 (Table 2), GC/FID data alone are not necessarily supportive of GC/MS because GC/FID results cannot establish *a priori* that an analyte can pass through the transfer line into the mass spectrometer. However, it should be noted that these same investigators, in the Reference B studies, obtained GC/MS retention time and fragmentation data on stock solutions of some of the same compounds tested using GC/FID.

TABLE 2. REFERENCE B GC/FID ANALYSIS CONDITIONS

| | |
|---|---|
| Column: | 30-m x 0.25 mm I.D. bonded fused silica; 0.25 μm film thickness |
| Injection volume: | 1 μL splitless, 45-sec delay |
| Injector temperature: | 250°C |
| Detector temperature: | 300°C |
| Carrier gas: | Helium; linear velocity 30 cm/sec |
| Detector: | Flame ionization |
| Column temperature: | 40°C for 4 min; 40 to 300°C at 8°C/min; 300°C for 4 min |

## REFERENCE D - SUMMARY TABLES FROM DRAFT FINAL REPORT ON VALIDATION OF SW-846 METHODS 8010, 8015, AND 8020

This reference consists of three tables (one for each method) which include the results of aqueous spike recoveries for several compounds on the tentative Appendix IX list. The spike concentration, mean measured concentration, number of replicates, and RSD of the replicate analyses are given. No other information is provided. According to EPA (Reference G) the conditions given in SW-846 for these methods were followed.

## REFERENCE E - FINAL REPORT: CHROMATOGRAPHABILITY AND EXTRACTABILITY OF SELECTED APPENDIX VIII ANALYTES

In this study, selected compounds from Appendix VIII were examined for chromatographability by direct injection analysis of standards using the appropriate SW-846 method (8270, 8240, or 8150). Those compounds found to be chromatographable were spiked into distilled water at around 10-100 μg/L and the spiked samples analyzed by Methods 8270, 8240, or 8150.

SW-846 Methods 8240 and 8270 were followed except that different GC temperature programs were used. The differences are summarized below:

| Parameter | Semivolatiles | | Volatiles | |
|---|---|---|---|---|
| | Study | 8270 | Study | 8240 |
| Initial temperature | 30°C | 40°C | 30°C | 45°C |
| Initial hold | 2 min | 4 min | 3 min | 3 min |
| Final temperature | 310°C | 270°C | 215°C | 220°C |
| Ramp rate | 19°C/min | 10°C/min | 8°C/min | 8°C/min |

Seven different GC/MS units were used over a 2-month period to develop the data contained in this report. Considerable variation was seen among the units in the absolute retention times of the internal standards employed. This may indicate variation in carrier gas flow rates or column length. However, peak identification and quantitation were based on relative retention times and relative response factors to a series of six internal standards. This procedure compensated for variability among GC/MS units. The actual analysis of the series of quadruplicate spikes was performed on a single GC/MS unit to rule inter-unit variability. Also, unlike SW-846

Method 3510, only a single acid and base extraction was performed. Whereas Method 8150 recommends use of packed GC columns, the study used a 30-m wide-base DB-5 capillary column to separate the herbicides.

## REFERENCE F - CAPABILITY OF EPA METHODS 624 AND 625 TO MEASURE APPENDIX IX COMPOUNDS

The American Petroleum Institute contracted Rocky Mountain Analytical Laboratory to determine if 40 CFR 136 Methods 624 and 625 can be used to determine those chemicals on the Appendix IX list for which recognized methods were not available.

This study involved two separate tasks. The first task was directed towards obtaining fundamental data concerning Appendix IX organics which could be measured by GC/MS. This effort involved obtaining standard mass spectral and chromatographic data which could be used by laboratories involved in Appendix IX analyses. This information has previously not been readily available to the regulated community. In addition, the information obtained in this task was used to better define the experimental approach for the subsequent task, a limited recovery study. The recovery study involved spiking Appendix IX compounds into laboratory reagent water and groundwater at spike levels of 100 µg/L.

The analytical conditions employed are given in Table 3 and are considered equivalent to those given for the comparable SW-846 methods (624 ~ 8240; 625 ~ 8270).

## TABLE 3. REFERENCE F - EXPERIMENTAL CONDITIONS

### A. ANALYTICAL CONDITIONS FOR METHOD 624

Purge temperature: 40°C
Purge time: 10 min
Purge rate: 40 mL/min
Desorb temperature: 180°C
Desorb time: 3 min
Trap: 1 cm 3% SP-2100 on 60/80 Chromosorb WAW; 15 cm Tenax; 8 cm 35/60 silica-gel

#### GC Parameters

Injection port temperature: 220°C
Initial temperature: 60°C
Final temperature: 250°C
Initial time: 3 min
Ramp rate: 8°C/min
Final time: 12 min
Sep. oven temperature: 260°C
Source temperature: 80°C
Scan range/rate: 35 AMU to 260 AMU in 3.0 sec
Column: 6 ft x 1/4 in. glass, 1% SP-1000 on 60/80 Carbopack B

### C. ANALYTICAL CONDITIONS FOR METHOD 625

#### GC Parameters

Injection port temperature: 250°C
Initial temperature: 30°C
Final temperature: 325°C
Initial time: 1 min
Ramp rate: 10°C/min
Final time: 10 min
Sep. oven temperature: 250°C
Source temperature: 100°C
Scan range/rate: 35 AMU to 450 AMU in 0.75 sec
Column: 25 m quadrex methyl phenyl (5%) silicone 0.5 μ film thickness

## 4.0 GROUNDWATER PRACTICAL QUANTITATION LIMIT CALCULATIONS

If not listed for a specific compound by a method, the PQLs were calculated by one of these methods:

1. PQL = 10 times method detection limit given in SW-846 for the compound by the particular method.

2. PQL = 10 times method detection limit expected for any compound analyzable by the particular method.

3. From "accuracy regression equation." This method is based on a somewhat arbitrary decision of allowable estimated error and on a linear equation used to fit experimental determinations of known concentrations.

$$y = a\,C + b$$

where: y = measured concentration
C = known or true concentration
a,b = fitting constant for a particular compound

If (C - y)/C, the allowable error, is chosen then the value of C can be calculated from the experimentally fitted constants "a" and "b."

This method was not used for PQLs presented in the Federal Regulation publication, but was used for comparative purposes for some methods and analytes.

## 5.0 LIST OF ANALYTES AND METHODS REVIEWED

| Constituent | CAS No. | Method No. |
|---|---|---|
| Acenaphthene | 83-32-9 | 8100<br>8270 |
| Acenaphthylene | 208-96-8 | 8100<br>8270 |
| Acetone | 67-64-1 | 8240 |
| Acetophenone | 98-86-2 | 8270 |
| Acetonitrile; Methyl cyanide | 75-05-8 | 8015 |
| 2-Acetylaminofluorene; 2-AAF | 53-96-3 | 8270 |
| Acrolein | 107-02-8 | 8030<br>8240 |
| Acrylonitrile | 107-13-1 | 8030<br>8240 |
| Aldrin | 309-00-2 | 8080<br>8270 |
| Allyl chloride | 107-05-1 | 8010<br>8240 |
| 4-Aminobiphenyl | 92-67-1 | 8270 |
| Aniline | 62-53-3 | 8270 |
| Anthracene | 120-12-7 | 8100<br>8270 |
| Antimony | (Total) | 6010<br>7040<br>7041 |
| Aramite | 140-57-8 | 8270 |
| Arsenic | (Total) | 6010<br>7060<br>7061 |
| Barium | (Total) | 6010<br>7080 |
| Benzene | 71-43-2 | 8020<br>8240 |
| Benzo[a]anthracene; Benzanthracene | 56-55-3 | 8100<br>8270 |
| Benzo[b]fluoranthene | 205-99-2 | 8100<br>8270 |
| Benzo[k]fluoranthene | 207-08-9 | 8100<br>8270 |
| Benzo[ghi]perylene | 191-24-2 | 8100<br>8270 |
| Benzo[a]pyrene | 50-32-8 | 8100<br>8270 |
| Benzyl alcohol | 100-51-6 | 8270 |
| Beryllium | (Total) | 6010<br>7090<br>7091 |
| alpha-BHC | 319-84-6 | 8080<br>8250 |
| beta-BHC | 319-85-7 | 8080<br>8250 |
| delta-BHC | 319-86-8 | 8080<br>8250 |

| Constituent | CAS No. | Method No. |
|---|---|---|
| gamma-BHC: Lindane | 58-89-9 | 8080<br>8250 |
| Bis(2-chloroethcxy)methane | 111-91-1 | 8270 |
| Bis(2-chloroethyl) ether | 111-44-4 | 8270 |
| Bis(2-chloroisopropyl) ether; DCIP: Bis(2-chloro-1-methylethyl) ether | 108-60-1 | 8010<br>8270 |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | 8060<br>8270 |
| Bromodichloromethane | 75-27-4 | 8010<br>8240 |
| Bromoform: Tribromomethane | 75-25-2 | 8010<br>8240 |
| 4-Bromophenyl phenyl ether | 101-55-3 | 8270 |
| Butyl benzyl phthalate; Benzyl butyl phthalate | 85-68-7 | 8060<br>8270 |
| Cadmium | (Total) | 6010<br>7130<br>7131 |
| Carbon disulfide | 75-15-0 | 8240 |
| Carbon tetrachloride | 56-23-5 | 8010<br>8240 |
| Chlordane | 57-74-9 | 8080<br>8250 |
| p-Chloroaniline | 106-47-8 | 8270 |
| Chlorobenzene | 108-90-7 | 8010<br>8020<br>8240 |
| Chlorobenzilate | 510-15-6 | 8270 |
| p-Chloro-m-cresol | 59-50-7 | 8040 |
| Chloroethane; Ethyl chloride | 75-00-3 | 8010<br>8240 |
| Chloroform | 67-66-3 | 8010<br>8240 |
| 2-Chloronaphthalene | 91-58-7 | 8120<br>8270 |
| 2-Chlorophenol | 95-57-8 | 8040<br>8270 |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | 8270 |
| Chloroprene | 126-99-6 | 8010<br>8240 |
| Chromium | (Total) | 6010<br>7190<br>7191 |
| Chrysene | 218-01-9 | 8100<br>8270 |
| Cobalt | (Total) | 6010<br>7200<br>7201 |
| Copper | (Total) | 6010<br>7210 |
| m-Cresol | 108-39-4 | 8270 |
| o-Cresol | 95-48-7 | 8270 |
| p-Cresol | 106-44-5 | 8270 |
| Cyanide | 57-12-5 | 9010 |
| 2,4-D; 2,4-Dichlorophenoxyacetic acid | 94-75-7 | 8150 |
| 4,4'-DDD | 72-54-8 | 8080<br>8270 |
| 4,4'-DDE | 72-55-9 | 8080<br>8270 |

| Constituent | CAS No. | Method No. |
|---|---|---|
| 4,4'-DDT | 50-29-3 | 8080<br>8270 |
| Diallate | 2303-16-4 | 8270 |
| Dibenz[a,h]anthracene | 53-70-3 | 8100<br>8270 |
| Dibenzofuran | 132-64-9 | 8270 |
| Dibromochloromethane; Chlorodibromomethane | 124-48-1 | 8010<br>8240 |
| 1,2-Dibromo-3-chloropropane; DBCP | 96-12-8 | 8010<br>8240<br>8270 |
| 1,2-Dibromoethane; Ethylene dibromide | 106-93-4 | 8010<br>8240 |
| Di-n-butyl phthalate | 84-74-2 | 8060<br>8270 |
| o-Dichlorobenzene | 95-50-1 | 8010<br>8020<br>8120<br>8270 |
| m-Dichlorobenzene | 541-73-1 | 8010<br>8020<br>8120<br>8270 |
| p-Dichlorobenzene | 106-46-7 | 8010<br>8020<br>8120<br>8270 |
| 3,3'-Dichlorobenzidine | 91-94-1 | 8270 |
| trans-1,4-Dichloro-2-butene | 110-57-6 | 8240 |
| Dichlorodifluoromethane | 75-71-8 | 8010<br>8240<br>8240 |
| 1,1-Dichloroethane | 75-34-3 | 8010<br>8240 |
| 1,2-Dichloroethane; Ethylene dichloride | 107-06-2 | 8010<br>8240 |
| 1,1-Dichloroethylene; Vinylidene chloride | 75-35-4 | 8010<br>8240 |
| trans-1,2-Dichloroethylene | 156-60-5 | 8010<br>8240 |
| 2,4-Dichlorophenol | 120-83-2 | 8040<br>8270 |
| 2,6-Dichlorophenol | 87-65-0 | 8270 |
| 1,2-Dichloropropane | 78-87-5 | 8010<br>8240 |
| cis-1,3-Dichloropropene | 10061-01-5 | 8010<br>8240 |
| trans-1,3-Dichloropropene | 10061-02-6 | 8010<br>8240 |
| Dieldrin | 60-57-1 | 8080<br>8270 |
| Diethyl phthalate | 84-66-2 | 8060<br>8270 |
| O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin | 297-97-2 | 8270 |
| Dimethoate | 60-51-5 | 8270 |
| p-(Dimethylamino)azobenzene | 60-11-7 | 8270 |
| 7,12-Dimethylbenz[a anthracene | 57-97-6 | 8270 |
| 3,3'-Dimethylbenzidine | 119-93-7 | 8270 |
| alpha, alpha-Dimethylphenethylame | 122-09-8 | 8270 |

| Constituent | CAS No. | Method No. |
|---|---|---|
| 2,4-Dimethylphenol | 105-67-9 | 8040<br>8270 |
| Dimethyl phthalate | | 8060<br>8270 |
| m-Dinitrobenzene | 99-65-0 | 8270 |
| 4,6-Dinitro-o-cresol | 534-52-1 | 8040<br>8270 |
| 2,4-Dinitrophenol | 51-28-5 | 8040<br>8270 |
| 2,4-Dinitrotoluene | 121-14-2 | 8090<br>8270 |
| 2,6-Dinitrotoluene | | 8090<br>8270 |
| Dinoseb; DNBP<br>2-sec-Butyl-4,6-dinitrophenol | | 8150<br>8270 |
| Di-n-octyl phthalate | 117-84-0 | 8060<br>8270 |
| 1,4-Dioxane | 123-91-1 | 8015 |
| Diphenylamine | 122-39-4 | 8270 |
| Disulfoton | 298-04-4 | 8140<br>8270 |
| Endosulfan I | 959-98-8 | 8080<br>8250 |
| Endosulfan II | 33213-65-9 | 8080 |
| Endosulfan sulfate | 1031-07-8 | 8080<br>8270 |
| Endrin | 72-20-8 | 8080<br>8250 |
| Endrin aldehyde | 7421-93-4 | 8080<br>8270 |
| Ethylbenzene | 100-41-4 | 8020<br>8240 |
| Ethyl methacrylate | 97-63-2 | 8015<br>8240<br>8270 |
| Ethyl methanesulfonate | 62-50-0 | 8270 |
| Famphur | 52-85-7 | 8270 |
| Fluoranthene | 206-44-0 | 8100<br>8270 |
| Fluorene | 86-73-7 | 8100<br>8270 |
| Heptachlor | 76-44-8 | 8080<br>8270 |
| Heptachlor epoxide | 1024-57-3 | 8080<br>8270 |
| Hexachlorobenzene | 118-74-1 | 8120<br>8270 |
| Hexachlorobutadiene | 87-68-3 | 8120<br>8270 |
| Hexachlorocyclopentadiene | 77-47-4 | 8120<br>8270 |
| Hexachloroethane | 67-72-1 | 8120<br>8270 |
| Hexachlorophene | 70-30-4 | 8270 |
| Hexachloropropene | 1888-71-7 | 8270 |
| 2-Hexanone | 591-78-6 | 8240 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | 8100<br>8270 |
| Isobutyl alcohol | 78-83-1 | 8015 |
| Isodrin | 465-73-6 | 8270 |

| Constituent | CAS No. | Method No. |
|---|---|---|
| Isophorone | 78-59-1 | 8090<br>8270 |
| Isosafrole | 120-58-1 | 8270 |
| Kepone | 143-50-0 | 8270 |
| Lead | (Total) | 6010<br>7420<br>7421 |
| Mercury | (Total) | 7470 |
| Methacrylonitrile | 126-98-7 | 8015<br>8240 |
| Methapyrilene | 91-80-5 | 8270 |
| Methoxychlor | 72-43-5 | 8080<br>8270 |
| Methyl bromide; Bromomethane | 74-83-9 | 8010<br>8240 |
| Methyl chloride; Chloromethane | 74-87-3 | 8010<br>8240 |
| 3-Methylcholanthrene | 56-49-5 | 8270 |
| Methylene bromide; Dibromomethane | 74-95-3 | 8010<br>8240 |
| Methylene chloride; Dichloromethane | 75-09-2 | 8010<br>8240 |
| Methyl ethyl ketone; MEK | 78-93-3 | 8015<br>8240 |
| Methyl iodide; Iodomethane | 74-88-4 | 8010<br>8240 |
| Methyl methacrylate | 80-62-6 | 8015<br>8240 |
| Methyl methanesulfonate | 66-27-3 | 8270 |
| 2-Methylnaphthalene | 91-57-6 | 8270 |
| Methyl parathion; Parathion methyl | 298-00-0 | 8140<br>8270 |
| 4-Methyl-2-pentanone; Methyl isobutyl ketone | 108-10-1 | 8015<br>8240 |
| Naphthalene | 91-20-3 | 8100<br>8270 |
| 1,4-Naphthoquinone | 130-15-4 | 8270 |
| 1-Naphthylamine | 134-32-7 | 8270 |
| 2-Naphthylamine | 91-59-8 | 8270 |
| Nickel | (Total) | 6010<br>7520 |
| o-Nitroaniline | 88-74-4 | 8270 |
| m-Nitroaniline | 99-09-2 | 8270 |
| p-Nitroaniline | 100-01-6 | 8270 |
| Nitrobenzene | 98-95-3 | 8090<br>8270 |
| o-Nitrophenol | 88-75-5 | 8040<br>8270 |
| p-Nitrophenol | 100-02-7 | 8040<br>8270 |
| 4-Nitroquinoline 1-oxide | 56-57-5 | 8270 |
| N-Nitrosodi-n-butylamine | 924-16-3 | 8270 |
| N-Nitrosodiethylamine | 55-18-5 | 8270 |
| N-Nitrosodimethylamine | 62-75-9 | 8270 |
| N-Nitrosodiphenylamine | 86-30-6 | 8270 |
| N-Nitrosodipropylamine; Di-n-propylnitrosamine | 621-64-7 | 8270 |
| N-Nitrosomethylethylamine | 10595-95-6 | 8270 |
| N-Nitrosomorpholine | 59-89-2 | 8270 |
| N-Nitrosopiperidine | 100-75-4 | 8270 |

| Constituent | CAS No. | Method No. |
|---|---|---|
| N-Nitrosopyrrolidine | 930-55-2 | 8270 |
| 5-Nitro-o-toluidine | 99-55-8 | 8270 |
| Parathion | 56-38-2 | 8270 |
| Polychlorinated biphenyls; PCBs | See Note 7 | 8080<br>8250 |
| Polychlorinated dibenzo-p-dioxins; PCDDs | See Note 8 | 8280 |
| Polychlorinated dibenzofurans; PCDFs | See Note 9 | 8280 |
| Pentachlorobenzene | 608-93-5 | 8270 |
| Pentachloroethane | 76-01-7 | 8240<br>8270 |
| Pentachloronitrobenzene | 82-68-8 | 8270 |
| Pentachlorophenol | 87-86-5 | 8040<br>8270 |
| Phenacetin | 62-44-2 | 8270 |
| Phenanthrene | 85-01-8 | 8100<br>8270 |
| Phenol | 108-95-2 | 8040<br>8270 |
| p-Phenylenediamine | 106-50-3 | 8270 |
| Phorate | 298-02-2 | 8140<br>8270 |
| 2-Picoline | 109-06-8 | 8240<br>8270 |
| Pronamide | 23950-58-5 | 8270 |
| Propionitrile; Ethyl cyanide | 107-12-0 | 8015<br>8240 |
| Pyrene | 129-00-0 | 8100<br>8270 |
| Pyridine | 110-86-1 | 8240<br>8270 |
| Safrole | 94-59-7 | 8270 |
| Selenium | (Total) | 6010<br>7740<br>7741 |
| Silver | (Total) | 6010<br>7760 |
| Silvex; 2,4,5-TP | 93-72-1 | 8150 |
| Styrene | 100-42-5 | 8020<br>8240 |
| Sulfide | 18496-25-8 | 9030 |
| 2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid | 93-76-5 | 8150 |
| 2,3,7,8-TCDD; 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 1746-01-6 | 8280 |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 8270 |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | 8010<br>8240 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 8010<br>8240 |
| Tetrachloroethylene; Perchloroethylene Tetrachloroethene | 127-18-4 | 8010<br>8240 |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | 8270 |
| Tetraethyldithiopyrophosphate; Sulfotepp | 3689-24-5 | 8270 |
| Thallium | (Total) | 6010<br>7840<br>7841 |
| Tin | (Total) | 7870 |

| Constituent | CAS No. | Method No. |
|---|---|---|
| Toluene | 108-88-3 | 8020<br>8240 |
| o-Toluidine | 95-53-4 | 8270 |
| Toxaphene | 8001-35-2 | 8080<br>8250 |
| 1,2,4-Trichlorobenzene | 120-82-1 | 8270 |
| 1,1,1-Trichloroethane; Methylchloroform | 71-55-6 | 8240 |
| 1,1,2-Trichloroethane | 79-00-5 | 8010<br>8240 |
| Trichloroethylene; Trichloroethene | 79-01-6 | 8010<br>8240 |
| Trichlorofluoromethane | 75-69-4 | 8010<br>8240 |
| 2,4,5-Trichlorophenol | 95-95-4 | 8270 |
| 2,4,6-Trichlorophenol | 88-06-2 | 8040<br>8270 |
| 1,2,3-Trichloropropane | 96-18-4 | 8010<br>8240 |
| O,O,O-Triethyl phosphorothioate | 126-68-1 | 8270 |
| sym-Trinitrobenzene | 99-35-4 | 8270 |
| Vanadium | (Total) | 6010<br>7910<br>7911 |
| Vinyl acetate | 108-05-4 | 8240 |
| Vinyl chloride | 75-01-4 | 8010<br>8240 |
| Xylene (total) | 1330-20-7 | 8020<br>8240 |
| Zinc | (Total) | 6010<br>7950 |

# 6.0 ANALYTICAL METHOD DATA SHEETS FOR INDIVIDUAL COMPOUNDS

# SUMMARY OF APPROPRIATE ANALYTICAL METHODS FOR APPENDIX IX

## Part 2: Supplementary Information on Selected Compounds

Office of Solid Waste
Environmental Protection Agency

Final 7/9/87
~~1st~~ DRAFT, 6/10/87

Method 1 of 4

1) Common Name - Acenaphthene

2) CA Name - Acenaphthylene,1,2-dihydro-

3) CAS No. - 83-32-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Polyaromatic Hydrocarbons, p. Two-23

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 15.13 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 2 of 4

1) Common Name - Acenaphthene
2) CA Name - Acenaphthylene, 1,2-dihydro-
3) CAS No. - 83-32-9
4) SW-846 Method No. - 8100
5) Method Title - Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Base/Neutral, p. Two-24; Polyaromatic Hydrocarbons, p. Two-23
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 10.8 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 1 µg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 µg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 3 of 4

1) Common Name - Acenaphthene
2) CA Name - Acenaphthylene, 1,2-dihydro-
3) CAS No. - 83-32-9
4) SW-846 Method No. - 8310
5) Method Title - Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Base/Neutral, p. Two-24; Polyaromatic Hydrocarbons, p. Two-23
7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8310-6
9) Calibration - p. 8310-6
10) Interferences - p. 8310-3, 8000-2 to 8000-4
11) Accuracy and Precision - p. 8310-12
12) Detector - UV, p. 8310-4
13) Retention Time - 20.5 min, p. 8310-2
14) Ground Water Practical Quantitation Limit - 18 µg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 4 of 4

1) Common Name - Acenaphthene

2) CA Name - Acenaphthylene, 1,2-dihydro-

3) CAS No. - 83-32-9

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Polyaromatic Hydrocarbons, p. Two-23

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 17.8 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 19 µg/L,* p. 8250-2 & 8250-5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 4

1) Common name - Acenaphthylene

2) CA Name - Acenaphthylene

3) CAS No. - 208-96-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 14.57 min., p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 2 of 4

1) Common name - Acenaphthylene

2) CA Name - Acenaphthylene

3) CAS No. - 208-96-8

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8100-9

12) Detector - FID, p. 8100-3

13) Retention Time - 10.4 min, p. 8100-2

14) Ground Water Practical Quantitation Limit - 10 µg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 µg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 4 of 4

1) Common name - Acenaphthylene
2) CA Name - Acenaphthylene
3) CAS No. - 208-96-8
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 17.4 μg/L, p. 8250-2
14) Ground Water Practical Quantitation Limit - 35 μg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5)

Method 1 of 1

1) Common Name - Acetone
2) CA Name - 2-Propanone
3) CAS No. - 67-64-1
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to 8240-22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 8240-19
10) Interferences - p. 8240-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8240-10
13) Retention Time - 6.2 min,* Ref. F, p. 9
14) Ground Water Practical Quantitation Limit - 100 µg/L, p. 8240-4

---

*Column conditions equivalent, but not identical to those in SW-846.

Method 1 of 2

1) Common name - Acetonitrile

2) CA Name - Ethanenitrile

3) CAS No. - 75-05-8

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Acetonitrile, Acrolein, Acrylonitrile, p. Two-28

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to 8240-19

10) Interferences - p. 8240-6

11) Accuracy and Precision - Ref. F, p. 18

12) Detector - MS, p. 8240-10

13) Retention Time - 3.97 min,* Ref. B, p. 44; 4.12 min,* Ref. F, p. 9

14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8240-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for determining an individual compound is approximately 5 µg/L for ground water samples.

Method 2 of 2

1) Common name - Acetonitrile
2) CA Name - Ethanenitrile
3) CAS No. - 75-05-8
4) SW-846 Method No. - 8030
5) Method Title - Acrolein, Acrylonitrile, Acetonitrile
6) Analyte Classification - Acetonitrile, Acrolein, Acrylonitrile, p. Two-28
7) Preparation Method - p. 8030-5, 5030-12 to -14
8) Operating Parameters - p. 8030-5
9) Calibration - p. 8030-5 to -6, 8000-2 to -4
10) Interferences - p. 8030-1, 5030-2, 8000-1
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - FID, p. 8030-3
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 2

1) Common Name - Acetophenone

2) CA Name - Ethanone, 1-phenyl-

3) CAS No. - 98-86-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 33 and 35

12) Detector - MS, p. 8270-8

13) Retention Time - 7.96 min,* p. 8270-2; (12.67 min,** Ref. B, p. 52; 11.40 min,** Ref. F, p. 11)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions equivalent, but not identical to those in SW-846.

***PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common Name - Acetophenone
2) CA Name - Ethanone, 1-phenyl-
3) CAS No. - 98-86-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 1

1) Common Name - 2-Acetylaminofluorene; 2-AAF

2) CA Name - Acetamide, N-9H-fluoren-2-yl

3) CAS No. - 53-96-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (Classification based on analytical judgment; not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 31 and 35

12) Detector - MS, p. 8270-8

13) Retention Time - 33.58 min,* Ref. B, p. 52; 28.78 min,* Ref. F, p. 11

14) Ground Water Practical Quantitation Limit - 10 $\mu$g/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 $\mu$g/L for ground water samples.

Method 1 of 2

1) Common Name - Acrolein
2) CA Name - 2-Propenal
3) CAS No. - 107-02-8
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Acetonitrile, Acrolein, Acrylonitrile p. Two-28; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to 22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 19
10) Interferences - p. 8240-6
11) Accuracy and Precision - Ref. E, p. 19; Ref. F, p. 18
12) Detector - MS, p. 8240-10
13) Retention Time - 6 min,* Ref. F, p. 9
14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8240-1

*Column conditions equivalent to, but not identical to those in SW-846.

**The PQL of Method 8240 for determining an individual compound is approximately 5 µg/L for ground water samples.

Method 2 of 2

1) Common Name - Acrolein

2) CA Name - 2-Propenal

3) CAS No. - 107-02-8

4) SW-846 Method No. - 8030

5) Method Title - Acrolein, Acrylonitrile, Acetonitrile

6) Analyte Classification - Acetonitrile, Acrolein, Acrylonitrile p. Two-28; Volatiles, p. Two-28

7) Preparation Method - p. 8030-5, 5030-12 to -14

8) Operating Parameters - p. 8030-5

9) Calibration - p. 8030-5 to -6, 8000-2 to -4

10) Interferences - p. 8030-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8030-10

12) Detector - FID, p. 8030-3

13) Retention Time - 10.6, 8.2 min,* p. 8030-2

14) Ground Water Practical Quantitation Limit - 7.0 μg/L,** p. 8030-2

---

*Retention times from two columns.

**PQL = MDL (p. 8030-2) x ground water factor (p. 8030-2).

Method 1 of 2

1) Common name - Acrylamide; 2-Propenamide*

2) CA Name - 2-Propenamide

3) CAS No. - 79-06-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Non-halogenated Volatiles; p. Two-27

7) Preparation Method - p. 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Ref. B, p. 58 and 59 states that acrylamide was detected by GC-MS, but with such poor chromatography that other GC conditions would be required for successful analysis.

Method 2 of 2

1) Common name - Acrylamide, 2-Propenamide

2) CA Name - 2-Propenamide

3) CAS No. - 79-06-1

4) SW-846 Method No. - 8015

5) Method Title - Nonhalogenated Volatile Organics

6) Analyte Classification - Non-halogenated Volatiles, p. Two-27

7) Preparation Method - p. 8015-5, 5030-12 to -14

8) Operating Parameters - p. 8015-5 to -6

9) Calibration - p. 8015-6, 8000-2 to -4

10) Interferences - p. 8015-1, 5030-2, 8000-1

11) Accuracy and Precision - Ref. D, p. 68*

12) Detector - FID, p. 8015-1

13) Retention Time - No data, Ref. A-F

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F

---

*Acrylamide was not included in study because of poor purging efficiency.

Method 1 of 2

1) Common Name - Acrylonitrile

2) CA Name - 2-Propenenitrile

3) CAS No. - 107-13-1

4) SW-846 Method No. - 8030

5) Method Title - Acrolein, Acrylonitrile, Acetonitrile

6) Analyte Classification - Acetonitrile, Acrolein, Acrylonitrile, p. Two-28; Volatiles, p. Two-28

7) Preparation Method - p. 8030-5, 5030-12 to -14

8) Operating Parameters - p. 8030-5

9) Calibration - p. 8030-5 to -6, 8000-2 to -4

10) Interferences - p. 8030-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8030-10

12) Detector - FID, p. 8030-3

13) Retention Time - 12.7, 9.8 min,* p. 8030-2

14) Ground Water Practical Quantitation Limit - 5.0 μg/L,** p. 8030-2

---

*Retention times from two columns.

**PQL = MDL (p. 8030-2) x ground water factor (p. 8030-2).

Method 2 of 2

1) Common Name - Acrylonitrile
2) CA Name - 2-Propenenitrile
3) CAS No. - 107-13-1
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Acetonitrile, Acrolein, Acrylonitrile, p. Two-28; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - Ref. F, p. 18
12) Detector - MS, p. 8240-10
13) Retention Time - 6.5 min,* Ref. F, p. 9
14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8240-1

---

*Column conditions equivalent to, but not identical to those in SW-846.

**The PQL of Method 8240 for determining an individual compound is approximately 5 µg/L for ground water samples.

Method 1 of 3

1) Common Name - Aldrin

2) CA Name - 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1aa,4a,4ab,5a,8a,8ab)-

3) CAS No. - 309-00-2

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides & PCB, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 2.40, 4.10 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.04 μg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common Name - Aldrin

2) CA Name - 1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1aa,4a,4ab,5a,8a,8ab)-

3) CAS No. - 309-00-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data*, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions given on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common Name - Aldrin
2) CA Name - 1,4,6,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a,-hexahydro-1aa,4a,4ab,5a,8a,8ab)-
3) CAS No. - 309-00-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 24.0 min, p. 8250-2
14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-2 & 8250-5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 2

1) Common Name - Allyl chloride
2) CA Name - 1-Propene-3-chloro
3) CAS No. - 107-05-1
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatile Organic (based on analytical judgment, not listed on p. Two-27)
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 8000-1, 5030-2
11) Accuracy and Precision - Ref. D, p. 61
12) Detector - HECD, p. 8010-4
13) Retention Time - No data available, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 10 μg/L, Ref. D, p. 61

Method 2 of 2

1) Common Name - Allyl chloride

2) CA Name - 1-Propene, 3-chloro-

3) CAS No. - 107-05-1

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatile Organic (based on analytical judgment, not listed on p. Two-27)

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8250-16 to 8240-19

10) Interferences - p. 8240-6

11) Accuracy and Precision - Ref. F, p. 17

12) Detector - MS, p. 8240-10

13) Retention Time - 8.83 min, Ref. B, p.44*

14) Ground Water Practical Quantitation Limit - 5 μg/L,** p. 8240-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for determining an individual compound is approximately 5 μg/L for ground water samples.

Method 1 of 2

1) Common name - Aluminum

2) CA Name - Aluminum

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 308.215 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 60 µg/L,* p. 6010-16

---

*Based on results of analyses of standard samples.

PQL=450 µg/L based on 10 times detection limit given on p. 6010-2.

Method 2 of 2

1) Common name - Aluminum
2) CA Name - Aluminum
3) CAS No. - (Total)
4) SW-846 Method No. - 7020
5) Method Title - Aluminum (Atomic Absorption, Direct Aspiration)
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 7020-2, 3005-1 to -4, 3010-1 to -4
8) Operating Parameters - p. 7020-1
9) Calibration - p. 7000-7 to -8
10) Interferences - p. 7020-1, 7000-3 to -4
11) Accuracy and Precision - p. 7020-2
12) Detector - AAS, p. 7020-1 and 7000-6
13) Wavelength - 324.7 nm, p. 7020-1
14) Ground Water Practical Quantitation Limit - 1000 μg/L,* p. 7020-2

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 2

1) Common Name - 4-Aminobiphenyl

2) CA Name - [1,1'-Biphenyl]-4-amine

3) CAS No. - 92-67-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 33 & 35

12) Detector - MS, p. 8270-8

13) Retention Time - 19.18 min,* p. 8270-2; (25.08 min, Ref. B,** p. 52; 21.85 min, Ref. F,** p. 11)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

*Estimated retention time.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common Name - 4-Aminobiphenyl
2) CA Name - [1,1'-Biphenyl]-4-amine
3) CAS No. - 97-67-1
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data available, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data available,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data available, Ref. A-F checked

---

*Fragment ions are given on p. 8250-2.

Method 1 of 2

1) Common Name - Aniline
2) CA Name - Benzenamine
3) CAS No. - 62-53-3
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 29 and 35
12) Detector - MS, p. 8270-8
13) Retention Time - 5.68 min, p. 8270-2
14) Ground Water Practical Quantitation Limit - 10 μg/L,* p. 8270-1

---

*The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Aniline

2) CA Name - Benzenamine

3) CAS No. - 62-53-3

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data available,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions are given on p. 8250-2.

Method 1 of 4

1) Common name - Anthracene

2) CA Name - Anthracene

3) CAS No. - 120-12-7

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23;
Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 23.4 min., p. 8310-2

14) Ground Water Practical Quantitation Limit - 6.6 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2)

Method 2 of 4

1) Common name - Anthracene

2) CA Name - Anthracene

3) CAS No. - 120-12-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 19.77 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 3 of 4

1) Common name - Anthracene

2) CA Name - Anthracene

3) CAS No. - 120-12-7

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8100-9

12) Detector - FID, p. 8100-3

13) Retention Time - 15.9 min., p. 8100-2

14) Ground Water Practical Quantitation Limit - 10 µg/L,* p. 8100-9

---

*Based on regression equation for accuracy. A PQL of 200 µg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 4 of 4

1) Common name - Anthracene

2) CA Name - Anthracene

3) CAS No. - 120-12-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 22.8 min., p. 8250-2

14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5)

Method 1 of 3

1) Common name - Antimony

2) CA Name - Antimony

3) CAS No. - (Total)

4) SW-846 Method No. - 7041

5) Method Title - Antimony (Atomic Absorption, Furnace Technique)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7041-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7041-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7041-1, 7000-4 to -6

11) Accuracy and Precision - No data available, p. 7041-2

12) Detector - AAS, p. 7041-1, 7000-6

13) Wavelength - 217.6 nm (primary); 231.1 nm (alternate), p. 7041-1

14) Ground Water Practical Quantitation Limit - 30 μg/L,* p. 7041-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 3

1)_ Common name - Antimony

2)_ CA Name - Antimony

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, p. 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - No data in SW-846

12) Detector - ICP, p. 6010-5

13) Wavelength - 206.833 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 320 µg/L,* p. 6010-2

*Estimated PQL based on 10 times the method detection limit.

Method 3 of 3

1) Common name - Antimony

2) CA Name - Antimony

3) CAS No. - (Total)

4) SW-846 Method No. - 7040

5) Method Title - Antimony (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7040-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7040-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7040-1, 7000-3 to -4

11) Accuracy and Precision - p. 7040-2

12) Detector - AAS, p. 7040-1, 7000-6

13) Wavelength - 217.6 nm (primary); 231.1 nm (secondary), p. 7040-1

14) Ground Water Practical Quantitation Limit - 2000 µg/L,* p. 7040-2

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 1

1) Common Name - Aramite

2) CA Name - Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl) phenoxyl]-1-methylethyl ester

3) CAS No. - 140-57-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 31 and 35

12) Detector - MS, p. 8270-8

13) Retention Time - 30.92 min, Ref. B,* p. 52; 26.70 min, Ref. F,* p. 11

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Table G-4

Method 1 of 3

1) Common name - Arsenic
2) CA Name - Arsenic
3) CAS No. - (Total)
4) SW-846 Method No. - 6010
5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 6010-10, 3005-1 to -4
8) Operating Parameters - p. 6010-5
9) Calibration - p. 6010-11 to -15
10) Interferences - p. 6010-3 to -5
11) Accuracy and Precision - p. 6010-16
12) Detector - ICP, p. 6010-5
13) Wavelength - 193.696 nm, p. 6010-2
14) Ground Water Practical Quantitation Limit - 530 μg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit (p. 6010-2).

Method 3 of 4

1) Common name - Acenaphthylene

2) CA Name - Acenaphthylene

3) CAS No. - 208-96-8

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - UV, p. 8310-4

13) Retention Time - 18.5 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 23 μg/L,* p. 8310-2

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2)

Method 1 of 4

1) Common name - Benzo[k]fluoranthene

2) CA Name - Benzo[k]fluoranthene

3) CAS No. - 207-08-9

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 32.9 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 0.17 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2)

Method 2 of 4

1) Common name - Benzo[k]fluoranthene

2) CA Name - Benzo[k]fluoranthene

3) CAS No. - 207-08-9

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8100-9

12) Detector - FID, p. 8100-3

13) Retention Time - 28.0 min, p. 8100-2

14) Ground Water Practical Quantitation Limit - 1 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 3 of 4

1) Common name - Benzo[k]fluoranthene

2) CA Name - Benzo[k]fluoranthene

3) CAS No. - 207-08-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 31.55 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-7

Method 4 of 4

1) Common name - Benzo[k]fluoranthene

2) CA Name - Benzo[k]fluoranthene

3) CAS No. - 207-08-9

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 34.9 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 25 µg/L,* p. 8250-2 and -5

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5)

Method 1 of 4

1) Common name - Benzo[ghi]perylene
2) CA Name - Benzo[ghi]perylene
3) CAS No. - 191-24-2
4) SW-846 Method No. - 8310
5) Method Title - Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8310-6
9) Calibration - p. 8310-6
10) Interferences - p. 8310-3, 8000-2 to 8000-4
11) Accuracy and Precision - p. 8310-12
12) Detector - Fluorescence, p. 8310-4
13) Retention Time - 36.3 min, p. 8310-2
14) Ground Water Practical Quantitation Limit - 0.76 µg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2)

Method 2 of 4

1) Common name - Benzo[ghi]perylene
2) CA Name - Benzo[ghi]perylene
3) CAS No. - 191-24-2
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbon, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 38.6 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 1 µg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 µg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 3 of 4

1) Common name - Benzo[ghi]perylene

2) CA Name - Benzo[ghi]perylene

3) CAS No. - 191-24-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 41.43 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-7

Method 4 of 4

1) Common name - Benzo[ghi]perylene

2) CA Name - Benzo[ghi]perylene

3) CAS No. - 191-24-2

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 45.1 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 41 μg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5)

Method 1 of 4

1) Common name - Benzo[a]pyrene

2) CA Name - Benzo[a]pyrene

3) CAS No. - 50-32-8

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbon, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 33.9 min., p. 8310-2

14) Ground Water Practical Quantitation Limit - 0.23 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2)

Method 2 of 4

1) Common name - Benzo[a]pyrene

2) CA Name - Benzo[a]pyrene

3) CAS No. - 50-32-8

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8100-9

12) Detector - FID, p. 8100-3

13) Retention Time - 29.4 min, p. 8100-2

14) Ground Water Practical Quantitation Limit - 1 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 2 of 3

1)_ Common name - Arsenic

2)_ CA Name - Arsenic

3) CAS No. - (Total)

4) SW-846 Method No. - 7061

5) Method Title - Arsenic (Atomic Absorption, Gaseous Hydride)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7061-4 to -5

8) Operating Parameters - p. 7061-5 to -6

9) Calibration - p. 7000-7 to -8 and 7061-5

10) Interferences - p. 7061-1

11) Accuracy and Precision - p. 7061-6

12) Detector - AAS, p. 7061-2

13) Wavelength - 193.7 nm, p. 7061-5

14) Ground Water Practical Quantitation Limit - 20 μg/L,* p. 7061-1

---

*Estimated PQL based on 10 times the method detection limit.

Method 3 of 3

1) Common name - Arsenic

2) CA Name - Arsenic

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 193.696 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 20 µg/L,* p. 6010-16

---

*Based on results of analyses of standard samples.
PQL = 500 µg/L based on 10 times detection limit given on p. 6010-2.

Method 1 of 1

1) Common name - Auramine

2) CA Name - Benzenamine,4,4'-carbonimidoylbis[N,N-dimethyl-

3) CAS No. - 492-80-8

4) SW-846 Method No. - None

5) Method Title - None

6) Analyte Classification - Base/Neutral (Not listed on p. Two-24; classification based on analytical judgment)

7) Preparation Method - None

8) Operating Parameters - None

9) Calibration - None

10) Interferences - None

11) Accuracy and Precision - None

12) Detector - None

13) Retention Time - None

14) Ground Water Practical Quantitation Limit - None

Note: No data (References A, C, D, E, and F) could be found justifying the determination of this compound in ground water or other matrices. Battelle (Reference B) attempted Method 8270 analysis of a stock solution of the pure compound. It was not detectable, perhaps due to its polarity. HPLC may be an alternative approach.

Method 1 of 2

1) Common name - Barium

2) CA Name - Barium

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - No data in SW-846

12) Detector - ICP, p. 6010-5

13) Wavelength - 455.403 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 20 µg/L,[*] p. 6010-2

[*] Estimated PQL based on 10 times the method detection limit.

Method 2 of 2

1) Common name - Barium

2) CA Name - Barium

3) CAS No. - (Total)

4) SW-846 Method No. - 7080

5) Method Title - Barium (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7080-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7080-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7080-1, 7000-3 to -4

11) Accuracy and Precision - p. 7080-2

12) Detector - AA, p. 7080-1, 7000-6

13) Wavelength - 553.6 nm, p. 7080-1

14) Ground Water Practical Quantitation Limit - 1000µg/L* p. 7000-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 3

1) Common name - Benz[a]anthracene

2) CA Name - Benz[a]anthracene

3) CAS No. - 56-55-3

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 28.5 min., p. 8310-2

14) Ground Water Practical Quantitation Limit - 0.13 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2)

Method 2 of 3

1) Common name - Benz[a]anthracene
2) CA Name - Benz[a]anthracene
3) CAS No. - 56-55-3
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 20.6 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 1 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 3 of 3

1) Common name - Benz[a]anthracene

2) CA Name - Benz[a]anthracene

3) CAS No. - 56-55-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 27.83 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 1 of 2

1) Common Name - Benzene
2) CA Name - Benzene
3) CAS No. - 71-43-2
4) SW-846 Method No. - 8020
5) Method Title - Aromatic Volatile Organics
6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28
7) Preparation Method - p. 8020-6, 5030-12 to -14
8) Operating Parameters - p. 8020-6
9) Calibration - p. 8020-6, 8000-2 to -4
10) Interferences - p. 8020-1, 5030-2, 8000-1
11) Accuracy and Precision - p. 8020-13
12) Detector - PID, p. 8020-3
13) Retention Time - 3.33, 2.75 min,* p. 8020-2
14) Ground Water Practical Quantitation Limit - 2.0 µg/L**, p. 8020-2

*Retention Times from two columns.

**PQL = MDL (p. 8020-2) x ground water factor (p. 8020-2).

Method 2 of 2

1) Common Name - Benzene
2) CA Name - Benzene
3) CAS No. - 71-43-2
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 17.0 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 4

1) Common name - Benzo[b]fluoranthene

2) CA Name - Benz[e]acephenanthrylene

3) CAS No. - 205-99-2

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 31.6 min., p. 8310-2

14) Ground Water Practical Quantitation Limit - 0.18 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2)

Method 2 of 4

1) Common name - Benzo[b]fluoranthene

2) CA Name - Benz[e]acephenanthrylene

3) CAS No. - 205-99-2

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8100-9

12) Detector - FID, p. 8100-3

13) Retention Time - 28.0 min., p. 8100-2

14) Ground Water Practical Quantitation Limit - 1 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 3 of 4

1) Common name - Benzo[b]fluoranthene

2) CA Name - Benz[e]acephenanthrylene

3) CAS No. - 205-99-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 31.45 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-7

Method 4 of 4

1) Common name - Benzo[b]fluoranthene

2) CA Name - Benz[e]acephenanthrylene

3) CAS No. - 205-99-2

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 34.9 min., p. 8250-2

14) Ground Water Practical Quantitation Limit - 48 µg/L,* p. 8250-2 and 8250-5

---

*PDL = MDL (p. 8250-2) x ground water factor (p. 8250-5)

Method 3 of 4

1)_ Common name - Benzo[a]pyrene

2)_ CA Name - Benzo[a]pyrene

3) CAS No. - 50-32-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 32.80 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-7

Method 4 of 4

1) Common name - Benzo[a]pyrene

2) CA Name - Benzo[a]pyrene

3) CAS No. - 50-32-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbon, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 2520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 36.4 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 25 μg/L,* 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5)

Method 1 of 3

1) Common name - Benzyl alcohol

2) CA Name - Benzenemethanol

3) CAS No. - 100-51-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 32 and 35

12) Detector - MS, p. 8270-8

13) Retention Time - 6.78 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 20 µg/L, p. 8270-5

Method 2 of 3

1) Common name - Benzyl alcohol

2) CA Name - Benzenemethanol

3) CAS No. - 100-51-6

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-2.

Method 3 of 3

1) Common name - Benzyl alcohol*

2) CA Name - Benzenemethanol

3) CAS No. - 100-51-6

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD and FID, p. 8040-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8040 and there is no indication in Ref. A-F that this compound can be determined using this method, since it is not a phenolic compound.

Method 1 of 3

1) Common name - Beryllium

2) CA Name - Beryllium

3) CAS No. - (Total)

4) SW-846 Method No. - 7091

5) Method Title - Beryllium (Atomic Absorption, Furnace Technique)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7091-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7091-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7091-1, 7000-4 to -6

11) Accuracy and Precision - No data available, p. 7091-2

12) Detector - AAS, p. 7091-1, 7000-6

13) Wavelength - 234.9 nm, p. 7091-1

14) Ground Water Practical Quantitation Limit - 2 μg/L,* p. 7091-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 3

1) Common name - Beryllium

2) CA Name - Beryllium

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 313.042 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 3 $\mu$g/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 3 of 3

1) Common name - Beryllium

2) CA Name - Beryllium

3) CAS No. - (Total)

4) SW-846 Method No. - 7090

5) Method Title - Beryllium (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7090-2, 3005-1 to -4, 3010-2 to -4

8) Operating Parameters - p. 7090-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7090-1, 7000-3 to -4

11) Accuracy and Precision - p. 7090-2

12) Detector - AAS, p. 7090-1, 7000-6

13) Wavelength - 234.9 nm, p. 7090-1

14) Ground Water Practical Quantitation Limit - 50 µg/L,* p. 7090-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 3

1) Common Name - alpha-BHC (α-BHC)

2) CA Name - Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5b,6b)

3) CAS No. - 319-84-6

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides & PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7, 8000-2 to -4

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 1.35, 1.82 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.03 μg/L,** p. 8080-2 and -3

*Retention times from two columns.

**PQL = MDL (p. 8080-2) x ground water factor (8080-3).

Method 2 of 3

1) Common Name - alpha-BHC (α-BHC)

2) CA Name - Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5b,6b)

3) CAS No. - 319-84-6

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides & PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 21.1 min,* p. 8250-2

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8250-1

---

*Under the alkaline conditions of the extraction step, this compound is subject to decomposition. Neutral extraction should be performed if this compound is not being determined by Method 8080.

**The PQL of Method 8250 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common Name - alpha-BHC (α-BHC)

2) CA Name - Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5b,6b)

3) CAS No. - 319-84-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides & PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data*

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

1) Common Name - beta-BHC ($\beta$-BHC)
2) CA Name - Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a, 2b, 3a, 4b, 5a, 6b)
3) CAS No. - 319-85-7
4) SW-846 Method No. - 8080
5) Method Title - Organochlorine Pesticides and PCBs
6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26
7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8080-7
9) Calibration - p. 8080-7, 8000-2 to -4
10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8080-26
12) Detector - HECD, p. 8080-4
13) Retention Time - 1.90, 1.97 min,* p. 8080-2
14) Ground Water Practical Quantitation Limit - 0.06 μg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common Name - beta-BHC ($\beta$-BHC)

2) CA Name - Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2b,3a,4b,5a,6b)

3) CAS No. - 319-85-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 23.4 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 42 μg/L,* p. 8250-2 and -5

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common Name - beta-BHC (β-BHC)
2) CA Name - Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2b,3a,4b,5a,6b)
3) CAS No. - 319-85-7
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Fragment ions given on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common name - delta-BHC (δ-BHC)

2) CA Name - Cyclohexane,1,2,3,4,5,6-hexachloro-,(1a,2a,3a,4b,5a,6b)

3) CAS No. - 319-86-8

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutrals, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to 4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 2.15, 2.20 min, 8080-2*

14) Ground Water Practical Quantitation Limit - 0.09 μg/L,** 8080-2 and -3

*Retention time from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - delta-BHC ($\delta$-BHC)

2) CA Name - Cyclohexane,1,2,3,4,5,6-hexachloro-,(1a,2a,3a,4b,5a,6b)

3) CAS No. - 319-86-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 23.7 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 31 $\mu$g/L, p. 8250-2 and 8250-5*

---

*PQL = Method detection limit (p. 8250-2) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common name - delta-BHC (δ-BHC)

2) CA Name - Cyclohexane,1,2,3,4,5,6-hexachloro-,(1a,2a,3a,4b,5a,6b)-

3) CAS No. - 319-86-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions given on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - gamma-BHC ($\gamma$-BHC) (Lindane)

2) CA Name - Cyclohexane,1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5a,6b)

3) CAS No. - 58-89-9

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCB, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 1.70, 2.13 min, p. 8080-2*

14) Ground Water Practical Quantitation Limit - 0.04** µg/L, 8080-2 and -3

---

*Retention times from two methods.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - gamma-BHC ($\gamma$-BHC) (Lindane)

2) CA Name - Cyclohexane,1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5a,6b)-

3) CAS No. - 58-89-9

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 22.4 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 10 μg/L,* p. 8250-1

---

*The PQL of Method 8250 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common name - gamma-BHC ($\gamma$-BHC) (Lindane)

2) CA Name - Cychlohexane,1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5a,6b)-

3) CAS No. - 58-89-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*Fragment ions given on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common Name - Bis(2-chloroethoxy)methane

2) CA Name - Ethane, 1,1-[methylenebis(oxy)]bis[2-chloro-

3) CAS No. - 111-91-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Halogenated Volatile, p. Two-27; Base/ Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 9.23 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 3

1) Common Name - Bis(2-chloroethoxy)methane

2) CA Name - Ethane, 1,1-[methylenebis(oxy)]bis[2-chloro-

3) CAS No. - 111-91-1

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 12.2 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 53 μg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common Name - Bis(2-chloroethoxy)methane
2) CA Name - Ethane, 1,1-[methylenebis(oxy)]bis[2-chloro-
3) CAS No. - 111-91-1
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Base/Neutral, p. Two-24
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - HECD, p. 8010-4
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - Not calculated due to absence of verifiable retention time or other data.

Method 1 of 2

1) Common Name - Bis(2-chloroethyl)ether
2) CA Name - Ethane, 1,1'-oxybis[2-chloro-
3) CAS No. - 111-44-4
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 5.82 min, p. 8270-2
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 2

1) Common Name - Bis(2-chloroethyl)ether

2) CA Name - Ethane, 1,1'-oxybis[2-chloro-

3) CAS No. - 111-44-4

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 8.4 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 57 µg/L,* p. 8250-2 & 8250-5

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common Name - Bis(2-chloro-1-methylethyl) ether; 2,2'-Dichlorodisopropyl ether; (Bis(2-chloroisopropyl)ether)

2) CA Name - Propane, 2,2'-oxybis[1-chloro-

3) CAS No. - 108-60-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 7.22 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 3

1) Common Name - Bis(2-chloro-1-methylethyl) ether; 2,2'-Dichlorodisopropyl ether; (Bis(2-chloroisopropyl)ether)

2) CA Name - Propane, 2,2-oxybis[1-chloro-

3) CAS No. - 108-60-1

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Base/Neutral, p. Two-24;

7) Preparation Method - p. 8250-10, 3510-4 to-6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 9.3 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 57 $\mu$g/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common Name - Bis(2-chloro-1-methylethyl) ether, 2,2'-Dichlorodisopropyl ether; (Bis(2-chloroisopropyl)ether)

2) CA Name - Propane, 2,2-oxybis[1-chloro-

3) CAS No. - 108-60-1

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Base/Neutral p. Two-24

7) Preparation Method - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and Precision - Ref. D, p. 61

12) Detector - HECD, p. 8010-4

13) Retention Time - No data, Checked Ref. A-F

14) Ground Water Practical Quantitation Limit - 120 μg/L, Ref. D, p. 61

Method 1 of 3

1) Common Name - Bis(2-ethylhexyl)phthalate

2) CA Name - 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)ester

3) CAS No. - 117-81-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phthalate Ester, p. Two-22; Base/Neutral p. Two-24

7) Preparation - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and precision - p. 8270-28

12) Detector MS - p. 8270-8

13) Retention Time - 28.47 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 2 (Detector 1) of 3

1) Common Name - Bis(2-ethylhexyl)phthalate

2) CA Name - 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)ester

3) CAS No. - 117-81-7

4) SW-846 Method No. - 8060

5) Method Title - Phthalate Esters

6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24

7) Preparation - p. 8060-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8060-6

9) Calibration - p. 8060-6, 8000-2 to -4

10) Interferences - p. 8060-1, 3600-1 to -2, 3600-2, 8000-1

11) Accuracy and precision - p. 8060-13

12) Detector - ECD, p. 8060-1

13) Retention Time - 8.92, 10.5 min,* p. 8060-2

14) Ground Water Practical Quantitation Limit - 20 μg/L,** p. 8060-2

*Retention times are from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 2 (Detector 2) of 3

1) Common Name - Bis(2-ethylhexyl)phthalate

2) CA Name - 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)ester

3) CAS No. - 117-81-7

4) SW-846 Method No. - 8060

5) Method Title - Phthalate Esters

6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24

7) Preparation - p. 8060-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8060-6

9) Calibration - p. 8060-6, 8000-2 to -4

10) Interferences - p. 8060-1, 3600-1 to -2, 3600-2, 8000-1

11) Accuracy and precision - p. 8060-13

12) Detector - FID, p. 8060-1

13) Retention Time - 8.92, 10.5 min,* p. 8060-2

14) Ground Water Practical Quantitation Limit - 200 µg/L,** p. 8060-2

---

*Retention times are from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 3 of 3

1) Common Name - Bis(2-ethylhexyl)phthalate

2) CA Name - 1,2-Benzenedicarboxylic acid, bis(2-3thylhexyl)ester

3) CAS No. - 117-81-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classifications - Phthalate Ester, p. Two-22; Base-Neutral, p. Two-24

7) Preparation - p. 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and precision - p. 8250-25

12) Detector MS - p. 8250-6

13) Retention Time - 30.6 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 25 µg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 2

1) Common Name - Bromodichloromethane
2) CA Name - Methane, bromodichloro-
3) CAS No. - 75-27-4
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - p. 8010-12
12) Detector - HECD, p. 8010-4
13) Retention Time - 13.7, 14.6 min,* p. 8010-2
14) Ground Water Practical Quantitation Limit - 1.0 µg/L,** p. 8010-2 to -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Bromodichloromethane
2) CA Name - Methane, bromodichloro-
3) CAS No. - 75-27-4
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to 22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 14.3 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common Name - Bromoform, Tribomomethane

2) CA Name - Methane, tribromo-

3) CAS No. - 75-25-2

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 19.2, 19.2 min,* 8010-2

14) Ground Water Practical Quantitation Limit - 2.0 µg/L,** pp. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Bromoform, Tribromomethane
2) CA Name - Methane, tribromo-
3) CAS No. - 75-25-2
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28,
7) Preparation - p. 8240-19 to -22
8) Operating Parameters p. - 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 19.8 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common Name - 4-Bromophenyl phenyl ether

2) CA Name - Benzene, 1-bromo-4-phenoxy-

3) CAS No. - 101-55-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 18.27 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 2 of 2

1) Common Name - 4-Bromophenyl phenyl ether
2) CA Name - Benzene, 1-bromo-4-phenoxy-
3) CAS No. - 101-55-3
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 21.2 min, p. 8250-2
14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-2 & 8250-5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 (Detector 1) of 3

1) Common Name - Butyl benzyl phthalate; (Benzyl butyl phthalate)

2) CA Name - 1,2-Benzene dicarboxylic acid, butyl phenyl methyl ester

3) CAS No. - 85-68-7

4) SW-846 Method No. - 8060

5) Method Title - Phthalate Esters

6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8060-6

9) Calibration - p. 8060-6, 8000-2 to -4

10) Interferences - p. 8060-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8060-13

12) Detector - ECD, p. 8060-2

13) Retention Time - 6.94, 5.11 min,* p. 8060-2

14) Ground Water Practical Quantitation Limit - 3.4 µg/L,** p. 8060-2

---

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 1 (Detector 2) of 3

1) Common Name - Butyl benzyl phthalate; (Benzyl butyl phthalate)

2) CA Name - 1,2-Benzene dicarboxylic acid, butyl phenyl methyl ester

3) CAS No. - 85-68-7

4) SW-846 Method No. - 8060

5) Method Title - Phthalate Esters

6) Analyte Classification - Phthalate Esters; p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8060-6

9) Calibration - p. 8060-6, 8000-2 to -4

10) Interferences - p. 8060-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8060-13

12) Detector - FID, p. 8060-2

13) Retention Time - 6.94, 5.11 min,* p. 8060-2

14) Ground Water Practical Quantitation Limit - 150 μg/L,** p. 8060-2

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 2 of 3

1) Common Name - Butyl benzyl phthalate; (Benzyl butyl phthalate)

2) CA Name - 1,2-Benzene dicarboxylic acid, butyl phenyl methyl ester

3) CAS No. - 85-68-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phthalate esters, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 26.43 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 3 of 3

1) Common Name - Butyl benzyl phthalate; (Benzyl butyl phthalate)

2) CA Name - 1,2-Benzene dicarboxylic acid, butyl phenyl methyl ester

3) CAS No. - 85-68-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 29.9 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 25 μg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common name - Cadmium

2) CA Name - Cadmium

3) CAS No. - (Total)

4) SW-846 Method No. - 7131

5) Method Title - Cadmium (Atomic Absorption, Furnace Technique)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7131-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7131-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7131-1, 7000-4 to -6

11) Accuracy and Precision - p. 7131-2

12) Detector - AAS, p. 7131-1, 7000-6

13) Wavelength - 228.8 nm, p. 7131-1

14) Ground Water Practical Quantitation Limit - 1 µg/L,* p. 7131-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 3

1) Common name - Cadmium

2) CA Name - Cadmium

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 226.502 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 3 μg/L,* p. 6010-16

---

*Based on results of analyses of standard samples.
PQL=40 μg/L based on 10 times detection limit given on p. 6010-2.

Method 3 of 3

1) Common name - Cadmium

2) CA Name - Cadmium

3) CAS No. - (Total)

4) SW-846 Method No. - 7130

5) Method Title - Cadmium (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7130-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7130-1

9) Calibration - p. 7000-1 to -8

10) Interferences - p. 7130-1, 7000-3 to -4

11) Accuracy and Precision - p. 7130-2

12) Detector - AAS, p. 7130-1, 7000-6

13) Wavelength - 228.8 nm, p. 7130-1

14) Ground Water Practical Quantitation Limit - 50 μg/L,* p. 7130-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 1

1) Common Name - Carbon disulfide
2) CA Name - Carbon disulfide
3) CAS No. - 75-15-0
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8240-15 to -16
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8240-10
13) Retention Time - 7.47 min,* Ref. B, p. 44; 7.32 min,* Ref. F, p. 9
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

*Column conditions are equivalent, but not identical to those in SW-846.

Method 1 of 2

1) Common Name - Carbon Tetrachloride

2) CA Name - Methane, tetrachloro-

3) CAS No. - 56-23-5

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 13.0, 14,4 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 1.2 $\mu$g/L,** pp. 8010-2 and -3

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Carbon Tetrachloride

2) CA Name - Methane, tetrachloro-

3) CAS No. - 56-23-5

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 13.7 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 3

1) Common name - Chlordane

2) CA Name - 4,7-Methano-1H-indene,1,2,4,5,6,7,8,8-octachloro-
   2,3,3a,4,7,7a-hexahydro

3) CAS No. - 57-74-9

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 0.14 µg/L,** p. 8080-2 and -3

---

*Retention time could not be determined due to a multiple peak response.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Chlordane

2) CA Name - 4,7-methano-1H-indene,1,2,4,5,6,7,8,8-octachloro-
2,3,3a,4,7,7a-hexahydro

3) CAS No. - 57-74-9

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 19 to 30 min, p. 8250-2*

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250-1

---

*This "compound" is a mixture of various isomers.

**The PQL of Method 8250 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common name - Chlordane

2) CA Name - 4,7-Methano-1H-idene,1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro

3) CAS No. - 57-74-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*Fragment ions listed on p. 8270-2

**The PQL of Method 8270 for determining an individual compound is approximately 10 ug/L for ground water samples.

Method 1 of 2

1) Common Name - p-Chloroaniline; (4-Chloroaniline)
2) CA Name - Benzeneamine, 4-Chloro
3) CAS No. - 106-47-8
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 tc -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 29 and 35
12) Detector - MS, p. 8270-8
13) Retention Time - 10.08 min, p. 8270-2
14) Ground Water Practical Quantitation Limit - 20 μg/L, p. 8270-5

Method 2 of 2

1) Common Name - p-Chloroaniline
2) CA Name - Benzeneamine, 4-Chloro
3) CAS No. - 106-47-8
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data available, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data available, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data available, Ref. A-F checked. Not estimated due to absence of verifiable retention time.

1) Common Name - Chlorobenzene

2) CA Name - Benzene, Chloro-

3) CAS No. - 108-90-7

4) SW-846 Method No. - 8020

5) Method Title - Aromatic Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Aromatic Volatiles, Volatiles, p. Two-28

7) Preparation - p. 8020-6, 5030-12 to -14

8) Operating Parameters - p. 8020-6

9) Calibration - p. 8020-6, 8000-2 to -4

10) Interferences - p. 8020-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8020-13

12) Detector - PID, p. 8020-3

13) Retention Time - 9.17 min, 8.02 min,* p. 8020-2

14) Ground Water Practical Quantitation Limit - 2.0 µg/L,** p. 8020-2

*Retention times from two columns.

**PQL = MDL (p. 8020-2) x ground water factor (p. 8020-2).

1) Common Name - Chlorobenzene

2) CA Name - Benzene, chloro-

3) CAS No. - 108-90-7

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences p. - 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 24.2 min, 18.8 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 2.5 μg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

1) Common Name - Chlorobenzene

2) CA Name - Benzene, Chloro-

3) CAS No. - 108-90-7

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 24.6 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-5

Method 1 of 2

1) Common Name - Chlorobenzilate

2) CA Name - Benzeneacetic acid, 4-chloro-a-(4-chlorophenyl)-a-hydroxy-, ethyl ester

3) CAS No. - 510-15-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 34 & 35

12) Detector - MS, p. 8270-8

13) Retention Time - 31.77 min,* Ref. B, p. 52; 27.33 min,* Ref. F, p. 11

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common Name - Chlorobenzilate

2) CA Name - Benzeneacetic acid, 4-chloro-a-(4-chlorophenyl)-a-hydroxy-, ethyl ester

3) CAS No. - 510-15-6

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data available, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data available, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data. Not estimated due to absence of verifiable retention time.

Method 1 (Detector 1) of 3

1) Common Name - p-Chloro-m-cresol, (4-Chloro-3-methylphenol)
2) CA Name - Phenol, 4-chloro-3-methyl
3) CAS No. - 59-50-7
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - FID, p. 8040-3
13) Retention Time - 7.50 min, p. 8040-2
14) Ground Water Practical Quantitation Limit - 3.6 μg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common Name - p-Chloro-m-cresol, (4-Chloro-3-methylphenol)

2) CA Name - Phenol, 4-chloro-3-methyl

3) CAS No. - 59-50-7

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - ECD, p. 8040-3

13) Retention Time - 4.8 min, p. 8040-2

14) Ground Water Practical Quantitation Limit - 18 µg/L,* p. 8040-2 and -9

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common Name - p-Chloro-m-cresol, (4-Chloro-3-methyl phenol)

2) CA Name - Phenol, 4-chloro-3-methyl

3) CAS No. - 59-50-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 11.68 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 20 μg/L, p. 8270-5

Method 3 of 3

1) Common Name - p-Chloro-m-cresol, (4-Chloro-3-methyl phenol)

2) CA Name - Phenol, 4-chloro-3-methyl

3) CAS No. - 59-50-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-26

12) Detector - MS, p. 8250-6

13) Retention Time - 13.2 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 30 μg/L, p. 8250-2 and 8250-5

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 2

1) Common Name - Chloroethane; Ethyl chloride

2) CA Name - Ethane, chloro-

3) CAS No. - 75-00-3

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 3.33, 8.68 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 5.2 µg/L,** pp. 8010-2 and -3

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Chloroethane; Ethyl chloride

2) CA Name - Ethane, chloro-

3) CAS No. - 75-00-3

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27, Volatiles p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 4.6 min p. 8240-2

14) Ground Water Practical Quantitation Limit - 10 μg/L p. 8240-4

Method 1 of 2

1) Common Name - Chloroform
2) CA Name - Methane, trichloro-
3) CAS No. - 67-66-3
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and precision - p. 8010-12
12) Detector - HECD, p. 8010-4
13) Retention Time - 10.7, 12.1 min,* 8010-2
14) Ground Water Practical Quantitation Limit - 0.5 μg/L,** pp. 8010-2 and -3

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Chloroform

2) CA Name - Methane, trichloro-

3) CAS No. - 67-66-3

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 11.4 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 5 µg/L, p. 8240-4

Method 1 of 3

1) Common name - 2-Chloronaphthalene

2) CA Name - Naphthalene, 2-chloro-

3) CAS No. - 91-58-7

4) SW-846 Method No. - 8120

5) Method Title - Chlorinated Hydrocarbons

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8120-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8120-7

9) Calibration - p. 8120-7, 8000-2 to 8000-4

10) Interferences - p. 8120-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8120-13

12) Detector - ECD, p. 8120-4

13) Retention Time - 2.7 min (column temp. 150°C), 3.6 min (column temp. 165°C),* p. 8120-2

14) Ground Water Practical Quantitation Limit - 9.4 µg/L,** p. 8120-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 2 of 3

1) Common name - 2-Chloronaphthalene

2) CA Name - Naphthalene, 2-chloro-

3) CAS No. - 91-58-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 8270-17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 13.30 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 3 of 3

1) Common name - 2-Chloronaphthalene

2) CA Name - Naphthalene, 2-chloro-

3) CAS No. - 91-58-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 15.9 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 19 $\mu$g/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 (Detector 1) of 3

1) Common Name - 2-Chlorophenol

2) CA Name - Phenol, 2-chloro-

3) CAS No. - 95-57-8

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5; 3510-4 to -6; 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6; 8000-2 to -4

10) Interferences - p. 8040-1; 3500-1 to -2; 3600-2; 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - FID, p. 8040-3

13) Retention Time - 1.70 min, p. 8040-2

14) Ground Water Practical Quantitation Limit - 3.1 µg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common Name - 2-Chlorophenol

2) CA Name - Phenol, 2-Chloro-

3) CAS No. - 95-57-8

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - ECD, p. 8040-3

13) Retention Time - 3.3 min, p. 8040-9

14) Ground Practical Quantitation Limit - 5.8 μg/L,* p. 8040-9 and 8040-2

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common Name - 2-Chlorophenol

2) CA Name - Phenol, 2-chloro-

3) CAS No. - 95-57-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics, Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4, to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 5.97 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-5

Method 3 of 3

1) Common Name - 2-Chlorophenol
2) CA Name - Phenol, 2-chloro-
3) CAS No. - 95-57-8
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to -14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 5.9 min, p. 8250-2
14) Ground Water Practical Quantitation Limit - 33 μg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 2

1) Common Name - 4-Chlorophenyl phenyl ether

2) CA Name - Benzene, 1-chloro-4-phenoxy-

3) CAS No. - 7005-72-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 16.78 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 2 of 2

1) Common Name - 4-Chlorophenyl phenyl ether

2) CA Name - Benzene, 1-chloro-4-phenoxy-

3) CAS No. - 7005-72-3

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 19.5 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 42 µg/L,* p. 8250-2 & 8250-5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 1

1) Common name - 2-Chlorophenyl thiourea; 1-(o-chlorophenyl)thiourea

2) CA Name - Thiourea 2-Chlorophenyl

3) CAS No. - 5344-82-1

4) SW-846 Method No. - None

5) Method Title - None

6) Analyte Classification - Base/Neutral (Not listed on p. Two-24; classification based on analytical judgment)

7) Preparation Method - No data

8) Operating Parameters - No data

9) Calibration - No data

10) Interferences - No data

11) Accuracy and Precision - No data

12) Detector - No data

13) Retention Time - No data

14) Ground Water Practical Quantitation Limit - No data

Note: No data in References A-F could be found justifying the determination of this compound in ground water or other matrices.

Method 1 of 2

1) Common Name - Chloroprene

2) CA Name - 1,3-Butadiene, 2-chloro

3) CAS No. - 126-99-8

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles (Not listed on p. Two-27)

7) Preparation Method - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - Ref. F, p. 17

12) Detector - MS, p. 8240-10

13) Retention Time - 14.77 min, Ref. B,* p. 44; 11.23 min, Ref. F,* p. 9

14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8240-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Chloroprene
2) CA Name - 1,3-Butadiene, 2-chloro
3) CAS No. - 126-99-8
4) SW-846 Method No. - Method 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatile Organic (not listed on p. Two-27)
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1; 5030-2
11) Accuracy and Precision - p. Ref. D, p. 61
12) Detector - HECD, p. 8010-4
13) Retention Time - No data available, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 50 μg/L,* Ref. D, p. 61

Method 1 of 3

1) Common name - Chromium

2) CA Name - Chromium

3) CAS No. - (Total)

4) SW-846 Method No. - 7191

5) Method Title - Chromium (Atomic Absorption, Furnace Technique)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7191-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7191-1 to -2

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7191-1, 7000-4 to -6

11) Accuracy and Precision - p. 7191-2

12) Detector - AAS, p. 7191, 7000-6

13) Wavelength - 357.9 nm, p. 7191-1

14) Ground Water Practical Quantitation Limit - 10 μg/L,* p. 7191-3

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 3

1) Common name - Chromium

2) CA Name - Chromium

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 267.716 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 10 µg/L*, p. 6010-16

---

*Based on results of analyses of standard samples.
PQL=70 µg/L based on 10 times detection limit given on p. 6010-2.

Method 3 of 3

1) Common name - Chromium

2) CA Name - Chromium

3) CAS No. - (Total)

4) SW-846 Method No. - 7190

5) Method Title - Chromium (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7190-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7190-1

9) Calibration - p. 7000-7 to-8

10) Interferences - p. 7190-1, 7000-3 to -4

11) Accuracy and Precision - p. 7190-2

12) Detector - AAS, p. 7190-1, 7000-6

13) Wavelength - 357.9 nm, p. 7190-1

14) Ground Water Practical Quantitation Limit - 500 μg/L,* p. 7190-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 4

1) Common name - Chrysene

2) CA Name - Chrysene

3) CAS No. - 218-01-9

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8100-9

12) Detector - FID, p. 8100-3

13) Retention Time - 24.7 min, p. 8100-2

14) Ground Water Practical Quantitation Limit - 1 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 2 of 4

1) Common name - Chrysene

2) CA Name - Chrysene

3) CAS No. - 218-01-9

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 29.3 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 1.5 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 3 of 4

1) Common name - Chrysene

2) CA Name - Chrysene

3) CAS No. - 218-01-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 27.97 min, p. 8270-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-7

Method 4 of 4

1) Common name - Chrysene

2) CA Name - Chrysene

3) CAS No. - 218-01-9

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 31.5 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 25 μg/L,* p. 8250-2 and -5

---

*PQL = MDL (p. 8250-2) x ground water factor (p. 8250-5).

Table G-9

Method 1 of 3

1) Common name - Cobalt

2) CA Name - Cobalt

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 228.616 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 70 µg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit (p. 6010-2).

Method 2 of 3

1) Common name - Cobalt

2) CA Name - Cobalt

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 228.616 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 20 µg/L*, p. 6010-16

---

* Based on results of analyses of standard samples.
PQL= 70 µg/L based on 10 times detection limit given on p. 6010-2.

Method 3 of 3

1) Common name - Cobalt

2) CA Name - Cobalt

3) CAS No. - (Total)

4) SW-846 Method No. - 7200

5) Method Title - Cobalt (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7200-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7200-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7200-1, 7000-3 to -4

11) Accuracy and Precision - p. 7200-2

12) Detector - AAS, p. 7200-1, 7000-6

13) Wavelength - 240.7 nm, p. 7200-1

14) Ground Water Practical Quantitation Limit - 500 μg/L,* p. 7200-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 2

1) Common name - Copper
2) CA Name - Copper
3) CAS No. - (Total)
4) SW-846 Method No. - 6010
5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 6010-10, 3005-1 to -1, 3010-1 to -4
8) Operating Parameters - p. 6010-5
9) Calibration - p. 6010-11 to -15
10) Interferences - p. 6010-3 to -5
11) Accuracy and Precision - p. 6010-16
12) Detector - ICP, p. 6010-5
13) Wavelength - 324.754 nm, p. 6010-2
14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 6010-16

---

*Based on results of analyses of standard samples.
PQL= 60 µg/L based on 10 times detection limit given on p. 6010-2.

Method 2 of 2

1) Common name - Copper

2) CA Name - Copper

3) CAS No. - (Total)

4) SW-846 Method No. - 7210

5) Method Title - Copper (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7210-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7210-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7210-1, 7000-3 to -4

11) Accuracy and Precision - p. 7210-2

12) Detector - AAS, p. 7210-1, 7000-6

13) Wavelength - 324.7 nm, p. 7210-1

14) Ground Water Practical Quantitation Limit - 200 $\mu$g/L,* p. 7210-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 2

1) Common name - o-Cresol, (2-Methylphenol)

2) CA Name - Phenol, 2-methyl

3) CAS No. - 95-48-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 30 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 7.22 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 2

1) Common name - o-Cresol, (2-methyl phenol)

2) CA Name - Phenol, 2-methyl

3) CAS No. - 95-48-7

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD or FID, p. 8040-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 2

1) Common name - m-Cresol

2) CA Name - Phenol, 3-methyl-

3) CAS No. - 108-39-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 30 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 12.93 min, Ref. B,* p. 54

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - m-Cresol

2) CA Name - Phenol, 3-methyl-

3) CAS No. - 108-39-4

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD or FID, p. 8040-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F Checked

Method 1 of 2

1) Common name - p-Cresol

2) CA Name - Phenol, 4-methyl

3) CAS No. - 106-44-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 30 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 7.60 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-5

Method 2 of 2

1) Common name - p-Cresol

2) CA Name - Phenol, 4-methyl

3) CAS No. - 106-44-5

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD or FID, p. 8040-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 1

1) Common name - Cyanide
2) CA Name - Cyanide
3) CAS No. - 57-12-5
4) SW-846 Method No. - 9010
5) Method Title - Total and Amenable Cyanide (Colorimetric, Manual)
6) Analyte Classification - Anion and Indicator Analyses, p. Two-30
7) Preparation Method - p. 9010-5 to -7
8) Operating Parameters - p. 9010-7
9) Calibration - p. 9010-7 to -8
10) Interferences - p. 9010-1 and 9010-6
11) Accuracy and Precision - p. 9010-9
12) Detector - Spectrophotometer, p. 9010-2
13) Wavelength - 578 nm, p. 9010-2
14) Ground Water Practical Quantitation Limit - 40 μg/L,* p. 9010-7

---

*Estimated PQL based on the lowest standard solution concentration (p. 9010-7). An alternate PQL of 100 μg/L can be estimated based on 10 times the detection limit of 10 ug/L given on p. Two-30.

Method 1 of 1

1) Common name - 2-Cyclohexyl-4,6-dinitrophenol; (Dinex)

2) CA Name - Phenol,2-cyclohexyl-4,6-dinitro

3) CAS No. - 131-89-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and organic acids (Based on analytical judgment; not listed on p. Two-22)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - See note below

12) Detector - MS, p. 8270-8

13) Retention Time - 26.87 min, Ref. B,* p. 52

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

Note: Reference E reported the compound was chromatographable but not extractable (Table XIII, p. 32). In Table IX, p. 23 a 0% recovery of a 100 µg/L spike into distilled water was reported. However, Reference C (Table 10, p. 36) reported a 116% recovery of a spiked water sample with 4% RSD. Finally, Reference B reported that the response factor was too low for practical use. These conflicting conclusions suggest the compound requires further study.

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 1

1) Common name - 2,4-D;2,4-Dichlorophenoxyacetic acid

2) CA Name - Acetic acid, (2,4-dichlorophenoxy)-

3) CAS No. - 94-75-7

4) SW-846 Method No. - 8150

5) Method Title - Chlorinated Herbicides

6) Analyte Classification - Chlorinated Herbicides, p. Two-26

7) Preparation Method - p. 8150-10 to -13

8) Operating Parameters - p. 8150-13

9) Calibration - p. 8150-13 to 14, 8000-2 to -4

10) Interferences - p. 8150-1 and -3, 8000-1

11) Accuracy and Precision - p. 8150-20

12) Detector - ECD, p. 8150-3

13) Retention Time - 2.0 min, 1.6 min,* p. 8150-2

14) Ground Water Practical Quantitation Limit - 12 µg/L,** p. 8150-2

---

*Retention times from two columns.

**PQL = MDL (p. 8150-2) x ground water factor (p. 8150-2).

Method 1 of 3

1) Common name - 4,4'-DDD

2) CA Name - Benzene 1,1'-(2,2-dichloroethylidene)bis[4-chloro-

3) CAS No. - 72-54-8

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to 6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 7.83, 9.08 min, p. 8080-2*

14) Ground Water Practical Quantitation Limit - 0.11 μg/L, p. 8080-2 and 8080-3**

---

*Retention times from two GC columns.

**PQL = Method detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - 4,4'-DDD

2) CA Name - Benzene 1,1'-(2,2-dichloroethylidene)bis[4-chloro-

3) CAS No. - 72-54-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common name - 4,4'-DDD

2) CA Name - Benzene 1,1'-(2,2-dichloroethylidene)bis[4-chloro-

3) CAS No. - 72-54-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 28.6 min, p. 8250-2

14) Ground Water Practical Quantitation Limit - 28 μg/L,* p. 8250-2 and -5

---

*PQL = Method detection limit (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common name - 4,4'-DDE

2) CA Name - Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-

3) CAS No. - 72-55-9

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 5.13, 7.15 min, p. 8080-2*

14) Ground Water Practical Quantitation Limit - 0.04 µg/L, p. 8080-2 and -3**

---

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - 4,4'-DDE*

2) CA Name - Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-

3) CAS No. - 72-55-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approxi-

Method 3 of 3

1) Common name - 4,4'-DDE
2) CA Name - Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-
3) CAS No. - 72-55-9
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs; p. Two-26
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 27.2 min, p. 8250-2
14) Ground Water Practical Quantitation Limit - 56 $\mu$g/L,* p. 8250-2 and -5

---

*PQL = Method detection limit (p. 8250-2) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common Name - 4,4'-DDT
2) CA Name - Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-
3) CAS No. - 50-29-3
4) SW-846 Method No. - 8080
5) Method Title - Organochlorine Pesticides and PCBs
6) Analyte Classification - Organochlorine Pesticides & PCBs, p. Two-26; Base/Neutral, p. Two-24
7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8080-7
9) Calibration - p. 8080-7, 8000-2 to -4
10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8080-26
12) Detector - HECD, p. 8080-4
13) Retention Time - 9.40, 11.75 min,* p. 8080-2
14) Ground Water Practical Quantitation Limit - 0.12 µg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common Name - 4,4'-DDT

2) CA Name - Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-

3) CAS No. - 50-29-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organochlorine Pesticides & PCBs, p. Two-26; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-3.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common Name - 4,4'-DDT

2) CA Name - Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-

3) CAS No. - 50-29-3

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Organochlorine Pesticides & PCBs, p. Two-26; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 29.3 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 47 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (8250-3) x ground water factor (8250-5).

Method 1 of 1

1) Common Name - Diallate
2) CA Name - Carbamothioic acid, bis(1-methylethyl)-S-(2,3-dichloro-2-propenyl) ester
3) CAS No. - 2303-16-4
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Semivolatile Organic (not listed in any of the tables in Chapter Two, classification based on analytical judgment)
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to 17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. E, p. 23; Ref. C, p. 32 and 36
12) Detector - MS, p. 8270-8
13) Retention Time - 20.57, 20.78 min,* Ref. B, p. 52
14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Response for diallate is a doublet, the retention times given are presumably for the cis and trans isomers respectively. Column conditioners are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 4

1) Common name - Dibenz[a,h]anthracene

2) CA Name - Dibenz[a,h]anthracene

3) CAS No. - 53-70-3

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, 8310-4

13) Retention Time - 35.7 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 0.30 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 2 of 4

1) Common name - Dibenz[a,h]anthracene

2) CA Name - Dibenz[a,h]anthracene

3) CAS No. - 53-70-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 8270-17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 39.82 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-7

Method 3 of 4

1) Common name - Dibenz[a,h]anthracene

2) CA Name - Dibenz[a,h]anthracene

3) CAS No. - 53-70-3

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 43.2 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 25 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 4 of 4

1) Common name - Dibenz[a,h]anthracene

2) CA Name - Dibenz[a,h]anthracene

3) CAS No. - 53-70-3

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8100-9

12) Detector - FID, p. 8100-3

13) Retention Time - 36.2 min, p. 8100-2

14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 1 of 2

1) Common Name - Dibenzofuran
2) CA Name - Dibenzofuran
3) CAS No. - 132-64-9
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 34 and 36
12) Detector - MS, p. 8270-8
13) Retention Time - 15.63 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 2 of 2

1) Common Name - Dibenzofuran
2) CA Name - Dibenzofuran
3) CAS No. - 132-64-9
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data, Ref. A-F checked*
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-3.

Method 1 of 2

1. Common Name - Dibenzo [a,e] pyrene
2) CA Name - Naphtho [1,2,3,4-def] chrysene
3) CAS No. - 192-65-4
4) SW-846 Method No. - 8270
5) Method Title - GC/Ms for Semivolatile Organics: Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23
7) Preparation - p. 8270-11, 3510-4 to -6; 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and precision - No data, Ref. A-F checked
12) Detector - MS, p. 8270-8
13) Retention Time - 41.60 min, Ref. B,* p. 53
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common Name - Dibenzo [a,e] pyrene
2) CA Name - Naphtho[1,2,3,4-def]chrysene
3) CAS No. - 192-65-4
4) SW-846 Method No. - 8100
5) Method Title - Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23
7) Preparation - p. 8100-4, 3510-4 to -6; 3520-4 to -5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to -4
10) Interferences - p. 8100-1; 3500-1 to -2; 3600-2; 8000-1
11) Accuracy and precision - No data available. Ref. A-F checked
12) Detector - FID, p. 8100-3
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 1

1) Common Name - Dibenzo[a,h]pyrene

2) CA Name - Dibenzo[b,def]chrysene

3) CAS No. - 189-64-0

4) SW-846 Method No. - 8100

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23

7) Preparation - p. 8100-4, 3510-4 to -6; 3520-4 to -5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5; 8000-2 to -4

10) Interferences - p. 8100-1; 3500-1 to -2; 3600-2; 8000-1

11) Accuracy and precision - No data; Ref. A-F checked.

12) Detector - FID, p. 8100-3

13) Retention Time - No data; Ref. A-F checked.

14) Ground Water Practical Quantitation Limit - No data; Ref. A-F checked.

Note: No data could be found justifying the determination of this compound in ground water or other matrices, in References A-F. A 100 μg/L standard of the compound could not be determined by direct injection GC/MS (Reference F). It possibly could be determined by HPLC.

Method 1 of 1

1) Common Name - Dibenzo[a,i]pyrene
2) CA Name - Benzo[rst]pentaphene
3) CAS No. - 189-55-9
4) SW-846 Method No. - 8100
5) Method Title - Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaramatic Hydrocarbons, p. Two-23
7) Preparation - p. 8100-4, 3510-4 to -6; 3520-4 to -5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to -4
10) Interferences - p. 8100-1; 3500-1 to-2; 3500-2; 8000-1
11) Accuracy and precision - No data available, Ref. A-F checked.
12) Detector - FID, p. 8100-3
13) Retention Time - No data available, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data available, Ref. A-F checked

Note: No data could be found justifying the determination of this compound in ground water or other matrices in References A-F. A 100 μg/L standard of the compound could not be determined by direct injection GC/MS (Reference F). It possibly could be determined by HPLC.

Method 1 of 2

1) Common Name - Dibromochloromethane; Chlorodibromomethane

2) CA Name - Methane, dibromochloro-

3) CAS No. - 124-48-1

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12; Ref. D, p. 61

12) Detector - HECD, p. 8010-4

13) Retention Time - 16.5, 16.6 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 0.9 μg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Dibromochloromethane; Chlorodibromomethane

2) CA Name - Methane, dibromochloro-

3) CAS No. - 124-48-1

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 17.23 min, Ref. F,* p. 9

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

---

*Column conditions are equivalent, but not identical to those in SW-846.

Method 1 of 3

1) Common Name - 1,2-Dibromo-3-chloropropane; DBCP

2) CA Name - Propane, 1,2-dibromo-3-chloro-

3) CAS No. - 96-12-8

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatile Organics (not listed on p. Two-27)

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - Ref. F, p. 17; Ref. E, p. 19

12) Detector - MS, p. 8240-10

13) Retention Time - 27.35 min, Ref. F,* p. 9; 27.23 min, Ref. B,* p. 44

14) Ground Water Practical Quantitation Limit - 5 μg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 3

1) Common Name - 1,2-Dibromo-3-chloropropane; DBCP

2) CA Name - Propane, 1,2-dibromo-3-chloro-

3) CAS No. - 96-12-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Halogenated Volatile Organics (not listed on p. Two-27)

7) Preparation p. - 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters p. - 8270-12

9) Calibration p. - 8270-12 to -17

10) Interferences p. - 8270-8

11) Accuracy and precision - Ref. C, p. 36 and 46

12) Detector - MS, p. 8270-8

13) Retention Time - 11.5 min,* Ref. C, p. 61

14) Ground Water Practical Quantitation Limit - 10 μg/L,* p. 8270-1

---

*Retention time read from chromatogram. Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common Name - 1,2-Dibromo-3-chloropropane; DBCP
2) CA Name - Propane, 1,2-dibromo-3-chloro-
3) CAS No. - 96-12-8
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatile Organics (not listed on p. Two-27)
7) Preparation - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and precision - Ref. D, p. 61
12) Detector - HECD, p. 8010-4
13) Retention Time - (No data available), Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 100 $\mu$g/L,* Ref. D, p. 61

Method 1 of 2

1) Common Name - 1,2-Dibromoethane; Ethylene dibromide

2) CA Name - Ethane, 1,2-dibromo-

3) CAS No. - 106-93-4

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles; Volatiles (not listed on p. Two-27 or Two-28)

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - Ref. E, p. 19

12) Detector - MS, p. 8240-10

13) Retention Time - 13.47 min, Ref. F,* p. 9

14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 µg/L for ground water samples.

Method 2 of 2

1) Common Name - 1,2-Dibromoethane; Ethylene dibromide
2) CA Name - Ethane, 1,2-dibromo-
3) CAS No. - 106-93-4
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles; (not listed on p. Two-27), Volatiles; (not listed on p. Two-28)
7) Preparation - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8000-2 to -14
10) Interferences - p. 8010-1, 8000-1, 5030-2
11) Accuracy and precision - Ref. D, p. 62
12) Detector - HECD, p. 8010-4
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 31 μg/L,* Ref. D, p. 62

Method 1 (Detector 1) of 3

1) Common Name - Di-n-butyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dibutyl ester
3) CAS No. - 84-74-2
4) SW-846 Method No. - 8060
5) Method Title - Phthalate Esters
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8060-6
9) Calibration - p. 8060-6, 8000-2 to -4
10) Interferences - p. 8060-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8060-13
12) Detector - ECD, p. 8060-3
13) Retention Time - 8.65, 3.50 min,* p. 8060-2
14) Ground Water Practical Quantitation Limit - 3.6 μg/L,** p. 8060-2

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 1 (Detector 2) of 3

1) Common Name - Di-n-butyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dibutyl ester
3) CAS No. - 84-74-2
4) SW-846 Method No. - 8060
5) Method Title - Phthalate Esters
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8060-6
9) Calibration - p. 8000-2 to -4
10) Interferences - p. 8060-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8060-13
12) Detector - FID, p. 8060-3
13) Retention Time - 8.65, 3.50 min,* p. 8060-2
14) Ground Water Practical Quantitation Limit - 140 μg/L,** p. 8060-2

---

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 2 of 3

1) Common Name - Di-n-butyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dibutyl ester
3) CAS No. - 84-74-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 21.78 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 3 of 3

1) Common Name - Di-n-butyl phthalate

2) CA Name - 1,2-Benzenedicarboxylic acid, dibutyl ester

3) CAS No. - 84-74-2

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 24.7 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 25 μg/L,* p. 8250-3 & 8250-5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 5

1) Common Name - o-Dichlorobenzene; (1,2-Dichlorobenzene)
2) CA Name - Benzene, 1,2-dichloro-
3) CAS No. - 95-50-1
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Base/Neutral, p. Two-24; Aromatic Volatiles, p. Two-28; Halogenated Volatiles, p. Two-27
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - p. 8010-12
12) Detector - HECD, p. 8010-4
13) Retention Time - 34.9, 23.5 min,* p. 8010-2
14) Ground Water Practical Quantitation Limit - 1.5 μg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 5

1) Common Name - o-Dichlorobenzene; (1,2-Dichlorobenzene)
2) CA Name - Benzene, 1,2-dichloro-
3) CAS No. - 95-50-1
4) SW-846 Method No. - 8020
5) Method Title - Aromatic Volatiles Organics
6) Analyte Classification - Base/Neutral, p. Two-24; Aromatic Volatiles, p. Two-28; Halogenated Volatiles, p. Two-27
7) Preparation Method - p. 8020-6, 5030-12 to -14
8) Operating Parameters - p. 8020-6
9) Calibration - p. 8020-6, 8000-2 to -4
10) Interferences - p. 8020-1, 5030-2, 8000-1
11) Accuracy and Precision - p. 8020-13
12) Detector - PID, p. 8020-3
13) Retention Time - 25.9, 19.4 min,* p. 8020-2
14) Ground Water Practical Quantitation Limit - 4.0 μg/L, p. 8020-2

---

*Retention times from two columns.

**PQL = MDL (p. 8020-2) x ground water factor (p. 8020-2).

Method 3 of 5

1) Common Name - o-Dichlorobenzene; (1,2-Dichlorobenzene)

2) CA Name - Benzene, 1,2-dichloro

3) CAS No. - 95-50-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Aromatic Volatiles, p. Two-28; Halogenated Volatiles, p. Two-27

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 6.85 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-5

Method 4 of 5

1) Common Name - o-Dichlorobenzene; (1,2-Dichlorobenzene)

2) CA Name - Benzene, 1,2-dichloro-

3) CAS No. - 95-50-1

4) SW-846 Method No. - 8120

5) Method Title - Chlorinated Hydrocarbons

6) Analyte Classification - Base/Neutral, p. Two-24; Aromatic Volatiles, p. Two-28; Halogenated Volatiles, p. Two-27

7) Preparation Method - p. 8120-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8120-7

9) Calibration - p. 8120-7, 8000-2 to -4

10) Interferences - p. 8120-1, 3500-1 to 2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8120-13

12) Detector - ECD, p. 8120-4

13) Retention Time - 6.6, 9.3 min,* p. 8120-2

14) Ground Water Practical Quantitation Limit - 11.4 µg/L,** p. 8120-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 5 of 5

1) Common Name - o-Dichlorobenzene; (1,2-Dichlorobenzene)
2) CA Name - Benzene, 1,2-dichloro
3) CAS No. - 95-50-1
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24; Aromatic Volatiles, p. Two-28; Halogenated Volatiles, p. Two-27
7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to -14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 8.4 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 5

1) Common Name - m-Dichlorobenzene; (1,3-Dichlorobenzene)

2) CA Name - Benzene, 1,3-dichloro-

3) CAS No. - 541-73-1

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 34.0 min, 22.4 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 3.2 µg/L,** p. 8010-2 and -3

---

*Retention times from two columns

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 5

1) Common Name - m-Dichlorobenzene; (1,3-Dichlorobenzene)

2) CA Name - Benzene, 1,3-dichloro-

3) CAS No. - 541-73-1

4) SW-846 Method No. - 8020

5) Method Title - Aromatic Volatile Organics

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation - p. 8020-6, 5030-12 to -14

8) Operating Parameters - p. 8020-6

9) Calibration - p. 8020-6, 8000-2 to -4

10) Interferences - p. 8020-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8020-13

12) Detector - PID, p. 8020-3

13) Retention Time - 18.2 min, 15.0 min,* p. 8020-3

14) Ground Water Practical Quantitation Limit - 4.0 µg/L,** p. 8020-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8020-2) x ground water factor (p. 8020-3).

Method 3 of 5

1) Common Name - m-Dichlorobenzene; (1,3-Dichlorobenzene)

2) CA Name - Benzene, 1,3-dichloro-

3) CAS No. - 541-73-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 6.27 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-5

Method 4 of 5

1) Common Name - m-Dichlorobenzene; (1,3-Dichlorobenzene)

2) CA Name - Benzene, 1,3-dichloro-

3) CAS No. - 541-73-1

4) SW-846 Method No. - 8120

5) Method Title - Chlorinated Hydrocarbons

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation - p. 8120-6; 3510-4 to -6; 3520-4 to -5

8) Operating Parameters - p. 8120-7

9) Calibration - p. 8120-7, 8000-2 to 8000-4

10) Interferences - p. 8120-1, 3500-1 to -2. 3600-2, 8000-1

11) Accuracy and precision - p. 8120-13

12) Detector - ECD, p. 8120-4

13) Retention Time - 4.5 min; 6.8 min,* p. 8120-2

14) Ground Water Practical Quantitation Limit - 11.9 μg/L,** p. 8120-2 and -3

---

*Retention times provided for two GC colums.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 5 of 5

1) Common Name - m-Dichlorobenzene; (1,3-Dichlorobenzene)

2) CA Name - Benzene, 1,3-dichloro-

3) CAS No. - 541-73-1

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation - p. 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 7.4 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 19 µg/L,* p. 8250-3 and -5

Method 1 of 5

1) Common Name - p-Dichlorobenzene; (1,4-Dichlorobenzene)

2) CA Name - Benzene, 1,4-dichloro-

3) CAS No. - 106-46-7

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation Method - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 35.4, 22.3 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 2.4 μg/L,** p. 8010-3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 5

1) Common Name - p-Dichlorobenzene; (1,4-Dichlorobenzene)

2) CA Name - Benzene, 1,4-dichloro-

3) CAS No. - 106-46-7

4) SW-846 Method No. - 8020

5) Method Title - Aromatic Volatile Organics

6) Analyte Classification - Aromatic Volatiles, p. Two-28; Halogenated Volatiles, p. Two-27; Base/Neutral, p. Two-24

7) Preparation Method - p. 8020-6, 5030-12 to -14

8) Operating Parameters - p. 8020-6

9) Calibration - p. 8020-6, 8000-2 to -4

10) Interferences - p. 8020-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8020-13

12) Detector - PID, p. 8020-3

13) Retention Time - 16.8, 16.2 min,* p. 8020-2

14) Ground Water Practical Quantitation Limit - 3.0 μg/L,** p. 8020-2

---

*Retention times from two columns.

**PQL = Detection limit (p. 8020-2) x ground water factor (p. 8020-2).

Method 3 of 5

1) Common Name - p-Dichlorobenzene; (1,4-Dichlorobenzene)

2) CA Name - Benzene, 1,4-dichloro-

3) CAS No. - 106-46-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 6.40 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 4 of 5

1) Common Name - p-Dichlorobenzene; (1,4-Dichlorobenzene)
2) CA Name - Benzene, 1,4-dichloro-
3) CAS No. - 106-46-7
4) SW-846 Method No. - 8120
5) Method Title - Chlorinated Hydrocarbons
6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28
7) Preparation Method - p. 8120-6, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8120-7
9) Calibration - p. 8120-7, 8000-2 to -4
10) Interferences - p. 8120-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8120-13
12) Detector - ECD, p. 8120-4
13) Retention Time - 5.2, 7.6 min,* p. 8120-2
14) Ground Water Practical Quantitation Limit - 13.4 μg/L,* p. 8120-2 and -3

*Retention times from two columns.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 5 of 5

1) Common Name - p-Dichlorobenzene; (1,4-Dichlorobenzene)

2) CA Name - Benzene, 1,4-dichloro-

3) CAS No. - 106-46-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Halogenated Volatiles, p. Two-27; Aromatic Volatiles, p. Two-28

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 7.8 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 44 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 2

1) Common Name - 3,3'-Dichlorobenzidine

2) CA Name - [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-

3) CAS No. - 91-94-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 27.88 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 20 μg/L, p. 8270-6

Method 2 of 2

1) Common Name - 3,3'-Dichlorobenzidine

2) CA Name - [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-

3) CAS No. - 91-94-1

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 32.2 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 165 µg/L,* p. 8250-3 & 8250-5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 1

1) Common Name - trans-1,4-Dichloro-2-butene
2) CA Name - 2-Butene, 1,4-dichloro-,(E)-
3) CAS No. - 110-57-6
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to 8240-22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 8240-19
10) Interferences - p. 8240-6
11) Accuracy and Precision - Ref. F, p. 17
12) Detector - MS, p. 8240-10
13) Retention Time - 22.98 min, Ref. F,* p. 9
14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**PQL of Method 8240 for an individual compound is approximately 5 µg/L for ground water samples.

Method 1 of 2

1) Common Name - Dichlorodifluoromethane
2) CA Name - Methane, dichlorodifluoro-
3) CAS No. - 75-71-8
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles p. Two-28
7) Preparation - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and precision - Ref. F, p. 17
12) Detector - MS, p. 8240-10
13) Retention Time - 2.47 min, Ref. B,* p. 44; 1.93 min, Ref. F,* p. 9
14) Ground Water Practical Quantitation Limit - 5 μg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Dichlorodifluoromethane

2) CA Name - Methane, dichlorodifluoro-

3) CAS No. - 75-71-8

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - Ref. D, p. 62

12) Detector - HECD, p. 8010-4

13) Retention Time - No data p. 8010-2, Checked Ref. A-F

14) Ground Water Practical Quantitation Limit - 10 μg/L, Ref. D, p. 62

Method 1 of 2

1) Common Name - 1,2-Dichloroethane, Ethylene dichloride

2) CA Name - Ethane, 1,2-dichloro-

3) CAS No. - 107-06-2

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 11.4, 15.4 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 0.3 μg/L,** p. 8010-2 and 8010-3

---

*Retention times from two columns

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3)

Method 2 of 2

1) Common Name - 1,2-Dichloroethane; Ethylene dichloride
2) CA Name - Ethane, 1,2-dichloro-
3) CAS No. - 107-06-2
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 10.1 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common Name - 1,1-Dichloroethane
2) CA Name - Ethane, 1,1-dichloro-
3) CAS No. - 75-34-3
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - p. 8010-12
12) Detector - HECD, p. 8010-4
13) Retention Time - 9.30, 12.6 min,* p. 8010-2
14) Ground Water Practical Quantitation Limit - 0.7 μg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - 1,1-Dichloroethane
2) CA Name - Ethane, 1,1-dichloro-
3) CAS No. - 75-34-3
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 9.87 min, Ref. F, p. 9*
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

---

*Column conditions equivalent, but not identical to those in SW-846.

Method 1 of 2

1) Common Name - trans-1,2-Dichloroethylene

2) CA Name - Ethene, 1,2-dichloro-, (E)-

3) CAS No. - 156-60-5

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 10.1, 9.38 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 1.0 µg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - trans-1,2-Dichloroethylene

2) CA Name - Ethene, 1,2-dichloro-, (E)-

3) CAS No. - 156-60-5

4) SW-846 Method No. - 8240

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to 8240-19

10) Interferences - p. 8240-6

11) Accuracy and Precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 10.0 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common Name - 1,1-Dichloroethylene; Vinylidene chloride

2) CA Name - Ethene, 1,1-dichloro-

3) CAS No. - 75-35-4

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27, Volatiles p. Two-28

7) Preparation Method - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8010-12

12) Detector - HECD, p. 8010-4.

13) Retention Time - 8.0, 7.72 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 1.3 μg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - 1,1-Dichloroethylene; Vinylidene chloride
2) CA Name - Ethene, 1,1-dichloro-
3) CAS No. - 75-35-4
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 9.0 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 (Detector 1) of 3

1) Common Name - 2,4-Dichlorophenol
2) CA Name - Phenol, 2,4-dichloro-
3) CAS No. - 120-83-2
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - FID, p. 8040-3
13) Retention Time - 4.30 min, p. 8040-2
14) Ground Water Practical Quantitation Limit - 3.9 µg/L,* p. 8040-2

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common Name - 2,4-Dichlorophenol
2) CA Name - Phenol, 2,4-dichloro
3) CAS No. - 120-83-2
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - ECD, p. 8040-3
13) Retention Time - 5.8 min, p. 8040-9
14) Ground Water Practical Quantitation Limit - 6.8 µg/L,* p. 8040-2 and -9

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common Name - 2,4-Dichlorophenol
2) CA Name - Phenol, 2,4-dichloro-
3) CAS No. - 120-83-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-29
12) Detector - MS, p. 8270-8
13) Retention Time - 9.48 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 3 of 3

1) Common Name - 2,4-Dichlorophenol
2) CA Name - Phenol, 2,4-dichloro-
3) CAS No. - 120-83-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 9.8 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 27 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common Name - 2,6-Dichlorophenol

2) CA Name - Phenol, 2,6-dichloro

3) CAS No. - 87-65-0

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 30 and p. 36; Ref. E, p. 23

12) Detector - MS, p. 8270-8

13) Retention Time - 10.05 min,* p. 8270-3 (15.47 min, Ref. B,** p. 53; 13.87 min, Ref. F,** p. 12)

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 3

1) Common Name - 2,6-Dichlorophenol
2) CA Name - Phenol, 2,6-dichloro
3) CAS No. - 87-65-0
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data, Ref. A-F checked*
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-3.

Method 3 of 3

1) Common Name - 2,6-Dichlorophenol
2) CA Name - Phenol, 2,6-dichloro
3) CAS No. - 87-65-0
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - ECD or FID, p. 8040-3
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 2

1) Common Name - 1,2-Dichloropropane

2) CA Name - Propane, 1,2-dichloro-

3) CAS No. - 78-87-5

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 14.9, 16.6 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 0.4 µg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - 1,2-Dichloropropane
2) CA Name - Propane, 1,2-dichloro-
3) CAS No. - 78-87-5
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27
7) Preparation - p. 8240-19 to -22
8) Operating Parameters - p. 8204-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 15.7 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common name - cis-1,3-Dichloropropene

2) CA Name - 1-Propene, 1,3-dichloro-(z)-

3) CAS No. - 10061-01-5

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Wavelength - 15.9 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 2 of 2

1) Common name - cis-1,3-Dichloropropene
2) CA Name - 1-Propene, 1,3-dichloro-(z)-
3) CAS No. - 10061-01-5
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - p. 8010-12
12) Detector - HECD, p. 8010-4
13) Wavelength - 16.5 min,* p. 8010-9
14) Ground Water Practical Quantitation Limit - 20 µg/L, p. 8010-11

---

*Retention time read from chromatogram.

Method 1 of 2

1) Common Name - trans-1,3-Dichloropropene, (trans-1,3-Dichloropropylene)

2) CA Name - 1-Propene, 1,3-dichloro-(E)-

3) CAS No. - 10061-02-6

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7. 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 15.2, 16.6 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 3.4 μg/L,** p. 8010-2 and -3

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - trans-1,3-Dichloropropene, (trans-1,3-Dichloropropylene)

2) CA Name - 1-Propene, 1,3-dichloro-(E)-

3) CAS No. - 10061-02-6

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 17.2 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 5 μg/L - p. 8240-4

Method 1 of 3

1) Common Name - Dieldrin

2) CA Name - 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a,-octahydro-, 1aa,2b,2aa,3b,6b,6aa,7b,7aa-

3) CAS No. - 60-57-1

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 5.45, 7.23 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.02 μg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common Name - Dieldrin

2) CA Name - 2,7:3,6-Dimethanonapth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a,octahydro-, 1aa,2b,2aa,3b,6b,6aa,7b,7aa-

3) CAS No. - 60-57-1

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8270-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 27.2 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 25 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common Name - Dieldrin
2) CA Name - 2,7:3,6-Dimethanonaphth[2,3-b]oxirene,-3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro- 1aa,2b,2aa,3b,6b,6aa,7b,7aa-
3) CAS No. - 60-57-1
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions are given on p. 8270-3.

**PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 (Detector 1) of 3

1) Common Name - Diethyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, diethyl ester
3) CAS No. - 84-66-2
4) SW-846 Method No. - 8060
5) Method Title - Phthalate Esters
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8060-6
9) Calibration - p. 8060-6, 8000-2 to -4
10) Interferences - p. 8060-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8060-13
12) Detector - ECD, p. 8060-3
13) Retention Time - 2.82, 1.27 min,* p. 8060-2
14) Ground Water Practical Quantitation Limit - 4.9 μg/L,** p. 8060-2

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 1 (Detector 2) of 3

1) Common Name - Diethyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, diethyl ester
3) CAS No. - 84-66-2
4) SW-846 Method No. - 8060
5) Method Title - Phthalate Esters
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8060-6
9) Calibration - p. 8060-6, 8000-2 to -4
10) Interferences - p. 8060-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8060-13
12) Detector - FID, p. 8060-3
13) Retention Time - 2.82, 1.27 min,* p. 8060-2
14) Ground Water Practical Quantitation Limit - 310 μg/L,** p. 8060-2

---

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 2 of 3

1) Common Name - Diethyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, diethyl ester
3) CAS No. - 84-66-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 16.70 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 3 of 3

1) Common Name - Diethyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, diethyl ester
3) CAS No. - 84-66-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 20.1 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-3 & 8250-5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 1

1) Common Name - 0,0-Diethyl-0-2-pyrazinyl phosphorothioate; Thionazin

2) CA Name - Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester

3) CAS No. - 297-97-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organophosphorous Pesticide*; Base/Neutral (not listed on p. Two-24 or Two-25)

7) Preparation Method - p. 8270-11, 3510-4 to 6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 31 and 40

12) Detector - MS, p. 8270-8

13) Retention Time - 19.35 min, Ref. B,** p. 55

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Note: No information available concerning the detectability of this compound using Method 8140 - "Organophosphorus Pesticides"

**Column conditions are equivalent, but not identical to those in SW-846.

***PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 1

1) Common name - Dihydrosafrole

2) CA Name - 1,3-Benzodioxole, 5-propyl-

3) CAS No. - 94-58-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (Based on analytical judgment, not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 34 and 36

12) Detector - MS, p. 8270-8

13) Retention Time - 22.4 min, Ref. B,* p. 53

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

Note: Reference C reported that the compound hydrolyzed on storage and is unstable.

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 2

1) Common name - Dimethoate

2) CA Name - Phosphorodithioic acid, 0,0-dimethyl S-[2-(methylamine)-2-oxoethyl]ester

3) CAS No. - 60-51-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organophosphorous Pesticides, p. Two-25

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 31 and 36; Ref. E, p. 23

12) Detector - MS, p. 8270-8

13) Retention Time - 24.70 min, Ref. B,* p. 53

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - Dimethoate*

2) CA Name - Phosphorodithioic acid, 0,0-dimethyl S-[2-(methylamino)-2-oxoethyl]ester

3) CAS No. - 60-51-5

4) SW-846 Method No. - 8140

5) Method Title - Organophosphorus Pesticides

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8140-6, 3510-4 to 3510-6, 3520-4 to 3520-6

8) Operating Parameters - p. 8140-7

9) Calibration - p. 8140-7, 8000-2 to -4

10) Interferences - p. 8140-1 and -4, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - FPD, p. 8140-4

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8140 and there is no indication that this compound can be determined by this Method. However, it can be determined by Method 8270.

Method 1 of 2

1) Common Name - p-Dimethylaminoazobenzene
2) CA Name - Benzenamine,N,N-dimethyl-4-(phenylazo)-
3) CAS No. - 60-11-7
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 30 and 36; Ref. E, p. 23
12) Detector - MS, p. 8270-8
13) Retention Time - 24.48 min,* p. 8270-3, (27.50 min, Ref. B,** p. 53; 27.17 min, Ref. F,** p. 12)
14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common Name - p-Dimethylaminoazobenzene
2) CA Name - Benzenamine, N,N-dimethyl-4-(phenylazo)-
3) CAS No. - 60-11-7
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data, Ref. A-F checked*
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-3.

Method 1 of 2

1) Common Name - 7,12-Dimethylbenz[a]anthracene

2) CA Name - Benz[a]anthracene,7,12,-dimethyl

3) CAS No. - 57-97-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 33 and 36; Ref. E, p. 23

12) Detector - MS, p. 8270-8

13) Retention Time - 29.54 min,* p. 8270-3, (33.25 min, Ref. B,** p. 53; 32.45 min., Ref. F,** p. 12)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common Name - 7,12-Dimethylbenz[a]anthracene
2) CA Name - Benz[a]anthracene,7,12-dimethyl-
3) CAS No. - 57-97-6
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data, Ref. A-F checked*
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions given on p. 8250-3.

Method 1 of 1

1) Common Name - 3,3'-Dimethylbenzidine

2) CA Name - [1,1'-Biphenyl]-4,4'-diamine,3,3'-dimethyl

3) CAS No. - 119-93-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 29 and 36

12) Detector - MS, p. 8270-8

13) Retention Time - 28.55 min, Ref. B,* p. 53; 28.03 min, Ref. F,* p. 12

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 2

1) Common Name - α,α-Dimethyl phenethylamine

2) CA Name - Benzene ethanamine, α,α-dimethyl-

3) CAS No. - 122-09-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and precision - Ref. F, p. 19; Ref. E, p. 23

12) Detector -, MS, p. 8270-8

13) Retention Time - -9.51 min,* p. 8270-3 (13.25 min, Ref. F,** p. 12; 25.43 min, Ref. B,** p. 53)

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common Name - α,α-Dimethyl phenethylamine
2) CA Name - Benzene ethanamine, α,α-dimethyl-
3) CAS No. - 122-09-8
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to -11
10) Interferences - p. 8250-6
11) Accuracy and precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

*Fragment ions listed on p. 8250-3.

Method 1 (Detector 1) of 3

1) Common Name - 2,4-Dimethylphenol
2) CA Name - Phenol, 2,4-dimethyl-
3) CAS No. - 105-67-9
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2; 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - FID, p. 8040-3
13) Retention Time - 4.03 min, p. 8040-2
14) Ground Water Practical Quantitation Limit - 3.2 μg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common Name - 2,4-Dimethylphenol
2) CA Name - Phenol, 2,4-dimethyl-
3) CAS No. - 105-67-9
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3510-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - ECD, p. 8040-3
13) Retention Time - 2.9 min, p. 8040-9
14) Ground Water Practical Quantitation Limit - 6.3 µg/L,* p. 8040-2 and -9

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common Name - 2,4-Dimethylphenol
2) CA Name - Phenol, 2,4-dimethyl-
3) CAS No. - 105-67-9
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-29
12) Detector - MS, p. 8270-8
13) Retention Time - 9.03 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 3 of 3

1) Common Name - 2,4-Dimethylphenol
2) CA Name - Phenol, 2,4-dimethyl-
3) CAS No. - 105-67-9
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Volume Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 9.4 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 27 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 (Detector 1) of 3

1) Common Name - Dimethyl phthalate

2) CA Name - 1,2-Benzenedicarboxylic acid, dimethyl ester

3) CAS No. - 131-11-3

4) SW-846 Method No. - 8060

5) Method Title - Phthalate Esters

6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24

7) Preparation - p. 8060-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8060-6

9) Calibration - p. 8060-6, 8000-2 to -4

10) Interferences - p. 8060-1, 3500-1 to 2, 3600-2, 8000-1

11) Accuracy and precision - 8060-13

12) Detector - ECD, p. 8060-3

13) Retention Time - 2.03, 0.95 min,* p. 8060-2

14) Ground Water Practical Quantitation Limit - 2.9 µg/L,** p. 8060-2

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 1 (Detector 2) of 3

1) Common Name - Dimethyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dimethyl ester
3) CAS No. - 131-11-3
4) SW-846 Method No. - 8060
5) Method Title - Phthalate Esters
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation - p. 8060-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8060-6
9) Calibration - p. 8000-2 to -4
10) Interferences - p. 8060-1, 3500-1 to 2, 3600-2, 8000-1
11) Accuracy and precision - p. 8060-13
12) Detector - FID, p. 8060-3
13) Retention Time - 2.03, 0.95 min,* 8060-2
14) Ground Water Practical Quantitation Limit - 190 µg/L,** p. 8060-2

---

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 2 of 3

1) Common Name - Dimethyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dimethyl ester
3) CAS No. - 131-11-3
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation - p. 8270-11, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 14.48 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 3 of 3

1) Common Name - Dimethyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dimethyl ester
3) CAS No. - 131-11-3
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to -14
10) Interferences - p. 8250-6
11) Accuracy and precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 18.3 min, 8250-3
14) Ground Water Practical Quantitation Limit - 16 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 2*

1) Common name - m-Dinitrobenzene

2) CA Name - Benzene, 1,3-dinitro-

3) CAS No. - 99-65-0

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 32 and 36

12) Detector - MS, p. 8270-8

13) Retention Time - 17.78 min, Ref. F,** p. 12; 20.18 min, Ref. B,** p. 53

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Note: Method 8090 "Nitroaromatics and Cyclic Ketones" lists Dinitrobenzene as an analyte; however, no chromatographic data is presented in Ref. A, (or in B-F) to support the use of this method.

**Column conditions are equivalent, but not identical to those in SW-846.

***PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 (Detector 1) of 2

1) Common name - m-Dinitrobenzene

2) CA Name - Benzene, 1,3-dinitro-

3) CAS No. - 99-65-0

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and Cyclic Ketones

6) Analyte Classification - Nitroaroamtics and Cyclic Ketones, p. Two-22

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8090-7, 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - FID, p. 8090-2

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 2 (Detector 2) of 2

1) Common name - m-Dinitrobenzene

2) CA Name - Benzene, 1,3-dinitro-

3) CAS No. - 99-65-0

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and Cyclic Ketones

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8090-7, 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD, p. 8090-2

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 3

1) Common Name - 4,6-Dinitro-o-cresol, (4,6-Dinitro-2-methyl phenol)

2) CA Name - Phenol, 2-methyl-4,6-dinitro

3) CAS No. - 534-52-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 17.05 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 50 μg/L, p. 8270-6

Method 2 (Detector 1) of 3

1) Common Name - 4,6-Dinitro-o-cresol, (2-Methyl-4,6-dinitro phenol)
2) CA Name - Phenol, 2-methyl-4,6-dinitro
3) CAS No. - 534-52-1
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - FID, p. 8040-3
13) Retention Time - 10.24 min, p. 8040-2
14) Ground Water Practical Quantitation Limit - 160 μg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 2 (Detector 2) of 3

1) Common Name - 4,6-Dinitro-o-cresol, (2-Methyl-4,6-dinitro phenol)
2) CA Name - Phenol, 2-methyl-4,6-dinitro
3) CAS No. - 534-52-1
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - ECD, p. 8040-3
13) Retention Time - 36.6 min, p. 8040-9
14) Ground Water Practical Quantitation Limit - 200 μg/L,* p. Two-29

---

*Estimated PQL based on 10 times the detection limit given for semivolatile acidic extractible compounds on p. Two-29.

Method 3 of 3

1) Common Name - 4,6-Dinitro-o-cresol, (4,6-Dinitro-2-methyl phenol)
2) CA Name - Phenol, 2-methyl-4,6-dinitro
3) CAS No. - 534-52-1
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 16.2 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 240 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common Name - 2,4-Dinitrophenol
2) CA Name - Phenol, 2,4-dinitro-
3) CAS No. - 51-28-5
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-29
12) Detector - MS, p. 8270-8
13) Retention Time - 15.35 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 50 μg/L, p. 8270-6

Method 2 (Detector 1) of 3

1. Common Name - 2,4-Dinitrophenol
2) CA Name - Phenol, 2,4-dinitro-
3) CAS No. - 51-28-5
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - FID, p. 8040-3
13) Retention Time - 10.00 min, p. 8040-2
14) Ground Water Practical Quantitation Limit - 130 μg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 2 (Detector 2) of 3

1) Common Name - 2,4-Dinitrophenol
2) CA Name - Phenol, 2,4-dinitro-
3) CAS No. - 51-28-5
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - ECD, p. 8040-3
13) Retention Time - 46.9 min, p. 8040-2
14) Ground Water Practical Quantitation Limit - 200 μg/L,* p. Two-29

---

*Estimated PQL based on 10 times the detection limit given for semivolatile acidic extractible compounds on p. Two-29.

Method 3 of 3

1) Common Name - 2,4-Dinitrophenol
2) CA Name - Phenols, 2,4-dinitro-
3) CAS No. - 51-28-5
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 15.9 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 420 µg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 (Detector 1) of 3

1) Common Name - 2,4-Dinitrotoluene

2) CA Name - Benzene, 1-methyl-2,4-dinitro-

3) CAS No. - 121-14-2

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and Cyclic Ketones

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8090-7, 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

1) Accuracy and Precision - p. 8090-13

12) Detector - ECD, p. 8090-3

13) Retention Time - 5.35, 6.54 min,* p. 8090-2

14) Ground Water Practical Quantitation Limit - 0.2 µg/L,** p. 8090-2

*Retention times from two columns

**PQL = MDL (p. 8090-2) x ground water factor (p. 8090-2)

Method 1 (Detector 2) of 3

1) Common Name - 2,4-Dinitrotoluene
2) CA Name - Benzene, 1-methyl-2,4-dinitro-
3) CAS No. - 121-14-2
4) SW-846 Method No. - 8090
5) Method Title - Nitroaromatics and Cyclic Ketones
6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8090-7
9) Calibration - p. 8090-7, 8000-2 to -4
10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8090-13
12) Detector - FID, p. 8090-3
13) Retention Time 5.35, 6.54 min,* p. 8090-2
14) Ground Water Practical Quantitation Limit - 1 μg/L,** p. 8090-11 and -13

*Retention times from two columns.

**Based on regression equation for accuracy.

Method 2 of 3

1) Common Name - 2,4-Dinitrotoluene

2) CA Name - Benzene, 1-methyl-2,4-dinitro-

3) CAS No. - 121-14-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Nitroaromatics and Cyclic Ketones, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 15.80 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 3 of 3

1) Common Name - 2,4-Dinitrotoluene
2) CA Name - Benzene, 1-methyl-2,4-dinitro-
3) CAS No. - 121-14-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24; Nitroaromatics and Cyclic Ketones, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to -14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 19.8 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 57 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5)

Method 1 (Detector 1) of 3

1) Common Name - 2,6-Dinitrotoluene

2) CA Name - Benzene, 2-methyl- 1,3-dinitro-

3) CAS No. - 606-20-2

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and Cyclic Ketones

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8090-7, 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8090-13

12) Detector - ECD, p. 8090-2

13) Retention Time - 3.52, 4.75 min,* p. 8090-2

14) Ground Water Practical Quantitation Limit - 0.1 µg/L,** p. 8090-2

---

*Retention times from two columns.

**PQL = MDL (p. 8090-2) x ground water factor (p. 8090-2).

Method 1 (Detector 2) of 3

1) Common Name - 2,6-Dinitrotoluene

2) CA Name - Benzene, 2-methyl-1,3-dinitro

3) CAS No. - 606-20-2

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and Cyclic Ketones

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8090-7, 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Checked Ref. A-F

12) Detector - FID, p. 8090-2

13) Retention Time - 3.52 , 4.75 min,* p. 8090-2

14) Ground Water Practical Quantitation Limit - 1 μg/L,** p. 8090-11 and -13

---

*Retention times from two columns.

**Based on regression equation for accuracy.

Method 2 of 3

1) Common Name - 2,6-Dinitrotoluene
2) CA Name - Benzene, 2-methyl-1,3-dinitro-
3) CAS No. - 606-20-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 14.62 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 3 of 3

1) Common Name - 2,6-Dinitrotoluene
2) CA Name - Benzene, 2-methyl- 1,3-dinitro-
3) CAS No. - 606-20-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 18.7 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common Name - Dinoseb; DNBP; (2 sec-butyl-4,6-dinitrophenol)

2) CA Name - Phenol, 2-(1-methylpropyl)-4,6-dinitro-

3) CAS No. - 88-85-7

4) SW-846 Method No. - 8150

5) Method Title - Chlorinated Herbicides

6) Analyte Classification - Chlorinated Herbicide, p. Two-26; Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8150-10 to -13

8) Operating Parameters - p. 8150-13

9) Calibration - p. 8150-13 to -14 and 8000-2 to -4

10) Interferences - p. 8150-1 and -3, 8000-1

11) Accuracy and Precision - p. 8150-20

12) Detector - ECD, p. 8150-3

13) Retention Time - 11.2 min, p. 8150-2

14) Ground Water Practical Quantitation Limit - 0.7 μg/L,* p. 8150-2

---

*PQL = MDL (p. 8150-2) x ground water factor (p. 8150-2).

Method 2 of 3

1) Common Name - Dinoseb; DNBP; (2 sec-butyl-4,6-dinitrophenol)

2) CA Name - Phenol, 2-(1-methylpropyl)-4,6-dinitro-

3) CAS No. - 88-85-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22; Chlorinated Herbicide, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to -5, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 30 and 36

12) Detector - MS, p. 8270-8

13) Retention Time - 25.83 min, Ref. B,* p. 53; 22.52 min, Ref. F,* p. 11

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common Name - Dinoseb; DNBP; (2-sec-Butyl-4,6-dinitrophenol)

2) CA Name - Phenol, 2-(1-methylpropyl)-4,6-dinitro-

3) CAS No. - 88-85-7

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22; Chlorinated Herbicides, p. Two-26

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD or FID, p. 8040-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 3

1) Common Name - Di-n-octyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dioctyl ester
3) CAS No. - 117-84-0
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 30.48 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-7

Method 2 of 3

1) Common Name - Di-n-octyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dioctyl ester
3) CAS No. - 117-84-0
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 32.5 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 25 µg/L,* p. 8250-3 & 8250-5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 3 (Detector 1) of 3

1) Common Name - Di-n-octyl phthalate
2) CA Name - 1,2-Benzenedicarboxylic acid, dioctyl ester
3) CAS No. - 117-84-0
4) SW-846 Method No. - 8060
5) Method Title - Phthalate Esters
6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8060-6
9) Calibration - p. 8060-6, 8000-2 to -4
10) Interferences - p. 8060-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8060-13
12) Detector - ECD, p. 8060-3
13) Retention Time - 16.2, 8.0 min,* p. 8060-2
14) Ground Water Practical Quantitation Limit - 30 µg/L,** p. 8060-2

---

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 3 (Detector 2) of 3

1) Common Name - Di-n-octyl phthalate

2) CA Name - 1,2-Benzenedicarboxylic acid, dioctyl ester

3) CAS No. - 117-84-0

4) SW-846 Method No. - 8060

5) Method Title - Phthalate Esters

6) Analyte Classification - Phthalate Esters, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8060-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8060-6

9) Calibration - p. 8060-6, 8000-2 to -4

10) Interferences - p. 8060-1, 3500-1 to 2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8060-13

12) Detector - FID, p. 8060-3

13) Retention Time - 16.2, 8.0 min,* p. 8060-2

14) Ground Water Practical Quantitation Limit - 310 µg/L,** p. 8060-2

---

*Retention times from two columns.

**PQL = MDL (p. 8060-2) x ground water factor (p. 8060-2).

Method 1 of 2

1) Common Name - Diphenylamine
2) CA Name - Benzenamine, N-phenyl-
3) CAS No. - 122-39-4
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Techinque
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 29, 34, and 37
12) Detector - MS, p. 8270-8
13) Retention Time - 17.54 min,* p. 8270-3, (20.13 min, Ref. F,** p. 12)
14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common Name - Diphenylamine
2) CA Name - Benzenamine, N-phenyl-
3) CAS No. - 122-39-4
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, p. 8250-1

---

*Fragment ions listed on p. 8250-3.

Method 1 of 3

1) Common name - Disulfoton

2) CA Name - Phosphorodithioic acid,0,0-diethyl S-[2-ethylthioethyl]

3) CAS No. - 298-04-4

4) SW-846 Method No. - 8140

5) Method Title - Organophosphorus Pesticides

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8140-6, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8140-7

9) Calibration - p. 8140-7, 8000-2 to -4

10) Interferences - p. 8140-1 and -4, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8140-15

12) Detector - FPD, p. 8140-4

13) Retention Time - 2.10 min, p. 8140-2

14) Ground Water Practical Quantitation Limit - 2.0 µg/L,* p. 8140-2 and -3

---

*PQL = MDL (p. 8140-2) x ground water factor (p. 8140-3).

Method 2 of 3

1) Common name - Disulfoton

2) CA Name - Phosphorodithioic acid, 0,0-diethyl S-[2-ethylthioethyl] ester

3) CAS No. - 298-04-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organophosphorous Pesticides, p. Two-25

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 8270-17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 31 and 37

12) Detector - MS, p. 8270-8

13) Retention Time - 25.83 min, Ref. B,* p. 53

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common name - Disulfoton*

2) CA Name - Phosphorodithioic acid,0,0-diethyl S-[2-ethylthioethyl] ester

3) CAS No. - 298-04-4

4) SW-846 Method No. - 8150

5) Method Title - Chlorinated Herbicides

6) Analyte Classification - Organophosphorous Pesticides, p. Two-25

7) Preparation Method - p. 8150-10 to 8150-13

8) Operating Parameters - p. 8150-13

9) Calibration - p. 8150-13, 8000-2 to -4

10) Interferences - p. 8150-1 and -3, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD, p. 8150-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8150 and there is no indication that this compound can be determined by this method. However, it can be determined by Method 8270.

Method 1 of 3

1) Common Name - Endosulfan I
2) CA Name - 6,9-Methano-2,4,3-benzadioxathiepin, 6,7,8,8,10,10-hexachloro-1,5,5a,6,9,9a,-hexahydro-,3-oxide, (3a,5ab,6a,9a,9ab)
3) CAS No. - 959-98-8
4) SW-846 Method No. - 8080
5) Method Title - Organochlorine Pesticides and PCBs
6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides & PCBs, p. Two-26
7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8080-7
9) Calibration - p. 8080-7, 8000-2 to -4
10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8080-26
12) Detector - HECD, p. 8080-4
13) Retention Time - 4.50, 6.20 min,* p. 8080-2
14) Ground Water Practical Quantitation Limit - 0.14 µg/L,* p. 8080-2 and 3

---

*Retention times from two columns.

**PQL = MDL (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common Name - Endosulfan I

2) CA Name - 6,9-Methano-2,4,3-benzadioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a,-hexahydro-,3-oxide, (3a,5ab,6a,9a,9ab)

3) CAS No. - 959-98-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCB's, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data available, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 26.4 min,* p. 8250-3

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250-1

---

*See Section 1.3 on p. 8250-1

**The PQL of Method 8250 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common Name - Endosulfan I*
2) CA Name - 6,9-Methano-2,4,3-benzadioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-3-oxide, (3a,5ab,6a,9a,9ab)
3) CAS No. - 959-98-8
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8270-8
13) Retention Time - No data* (Ref. A-F checked)
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*See Section 1-3 on p. 8270-1.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - Endosulfan II

2) CA Name - 6,9-Methano-2,4,3-benzodioxathiepin,6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-3-oxide,(3a,5aa,6b,9b,9aa)

3) CAS No. - 33213-65-9

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 8.00, 8.28 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.04 µg/L,** p. 8080-3

---

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Endosulfan II

2) CA Name - 6,9-Methano-2,4,3-benzodioxathiepin,6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-3-oxide,(3a,5aa,6b,9b,9aa)

3) CAS No. - 33213-65-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*See Section 1.3 on p. 8270-1

**The PQL of Method 8270 for determining an individual compound is approximately 10 ug/L for ground water samples.

Method 3 of 3

1) Common name - Endosulfan II

2) CA Name - 6,9-Methano-2,4,3-benzodioxathiepin,6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-3-oxide,(3a,5aa,6b,9b,9aa)

3) CAS No. - 33213-65-9

4) SW-846 Method No. - 8250*

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 28.6 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250-1

---

*See Section 1.3 on p. 8250-1.

**The PQL of Method 8250 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - Endosulfan sulfate

2) CA Name - 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3,3-dioxide

3) CAS No. - 1031-07-8

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 14.22, 10.70 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.66 μg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Endosulfan sulfate

2) CA Name - 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3,3-dioxide

3) CAS No. - 1031-07-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochloride Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Fragment ions given on p. 8270-3.

**The PQL of Method 8270 for determining on individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common name - Endosulfan sulfate

2) CA Name - 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3,3-dioxide

3) CAS No. - 1031-07-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 29.8 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 56 µg/L,* p. 8250-3 and -5

---

*PQL = Method detection limit (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common name - Endrin

2) CA Name - 2,7:3,6-Dimethanonaphth[2,3-b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,1aa,2b,2ab,3a,6a,6ab,7b,7aa)-

3) CAS No. - 72-20-8

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to 2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 6.55, 8.10 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.06 µg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Endrin

2) CA Name - 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,1aa,2b,2ab,3a,6a,6ab,7b,7aa)-

3) CAS No. - 72-20-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. p. 8250-6

13) Retention Time - 27.9 min,* p. 8250-3

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250-1

---

*See Section 1.3 on p. 8250-1.

**The PQL of Method 8250 for determining an individual compound is approximately 10 µg/L for ground water samples (p. 8250-1).

Method 3 of 3

1) Common name - Endrin

2) CA Name - 2,7:3,6-Dimethanonaphth[2,3-b]oxirene,3,4,5,6,9,9-hexachloro-
1a,2,2a,3,6,6a,7,7a-octahydro-,1aa,2b,2ab,3a,6a,6ab,7b,7aa)-

3) CAS No. - 72-20-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*See Section 1.3 on p. 8270-1.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - Endrin aldehyde

2) CA Name - 1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde,
2,2a,3,3,4,7-hexachlorodecahydro-,(1a,2b,2ab,4b,5b,6ab,6bb,7R:)

3) CAS No. - 7421-93-4

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - HECD, p. 8080-4

13) Retention Time - 11.82, 9.30 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.23 μg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Endrin aldehyde

2) CA Name - 1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-,(1a,2b,2ab,4b,5b,6ab,6bb,7R:)

3) CAS No. - 7421-93-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions are given on p. 8270-3.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common name - Endrin aldehyde

2) CA Name - 1,2,4-methenocyclopenta[cd]pentalene-5-carboxaldehyde,
2,2a,3,3,4,7-hexachlorodecahydro-,(1a,2b,2ab,4b,5b,6ab,6bb,7R:)

3) CAS No. - 7421-93-4

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 2850-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250- 1

---

*Fragment ions are given on p. 8250-3.

**The PQL of Method 8250 for determining and individual compound is approximy 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - Endrin ketone

2) CA Name - 2,5,7-metheno-3H-cyclopenta[a]pentalen-3-one,3b,4,5,6,6,6a-hexachlorodecahydro-,(2a,3ab,3bb,4b,5b,6ab,7a,7ab,8R)

3) CAS No. - 53494-70-5

4) SW-846 Method No. - 8080*

5) Method Title - Organochlorine pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - HECD, p. 8080-4

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*The compound is mentioned on page 8080-8 of Section 7.4.5 of Method 8080 of Reference A as a degradation product of endrin. This compound can be determined by this method. However, because endrin ketone can be produced from the on-column degradation of endrin, the source of the endrin ketone can never be verified.

Method 2 of 3

1) Common name - Endrin ketone

2) CA Name - 2,5,7-metheno-3H-cyclopenta[a]pentalen-3-one,3b,4,5,6,6,6a-hexachlorodecahydro-,(2a,3ab,3bb,4b,5b,6ab,7a,7ab,8R)

3) CAS No. - 53494-70-5

4) SW-846 Method No. - 8270*

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

*Note: Although the compound is listed in SW846 Method 8270 with several fragment ions listed, no retention time or accuracy data were provided. None of the other References (B,C,D,E, or F) mention it. Insufficient data to justify inclusion on Appendix IX by Method 8270.

Method 3 of 3

1) Common name - Endrin ketone

2) CA Name - 2,5,7-metheno-3H-cyclopenta[a]pentalen-3-one, 3b,4,5,6,6,6a-hexachlorodecahydro-,(2a,3ab,3bb,4b,5b,6ab,7a,7ab,8R)

3) CAS No. - 53494-70-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Wavelength - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 2

1) Common Name - Ethylbenzene

2) CA Name - Benzene, ethyl-

3) CAS No. - 100-41-4

4) SW-846 Method No. - 8020

5) Method Title - Aromatic Volatile Organics

6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28

7) Preparation Method - p. 8020-6, 5030-12 to -14

8) Operating Parameters - p. 8020-6

9) Calibration - p. 8020-6, 8000-2 to -4

10) Interferences - p. 8020-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8020-13

12) Detector - PID, p. 8020-3

13) Retention Time - 8.25, 6.25 min,* p. 8020-2

14) Ground Water Practical Quantitation Limit - 2.0 µg/L,** p. 8020-2

---

*Retention times from two columns.

**PQL = MDL (p. 8020-2) x ground water factor (p. 8020-2).

Method 2 of 2

1) Common Name - Ethylbenzene

2) CA Name - Benzene, ethyl-

3) CAS No. - 100-41-4

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28;

7) Preparation Method - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 26.4 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-5

Method 1 of 1

1) Common name - Ethyleneimine

2) CA Name - Aziridine

3) CAS No. - 151-56-4

4) SW-846 Method No. - None

5) Method Title - None

6) Analyte Classification - Uncertain, does not behave as a volatile or semivolatile

7) Preparation Method - None

8) Operating Parameters - None

9) Calibration - None

10) Interferences - None

11) Accuracy and Precision - None

12) Detector - None

13) Retention Time - None

14) Ground Water Practical Quantitation Limit - None

Note: According to Reference B it was not detectable by either Method 8240 or 8270 due to its polarity. They recommend ion chromatography as an alternative technique. No data was available from the other references (A,C,D,E, and F).

Method 1 of 2

1) Common Name - Ethyl methacrylate
2) CA Name - 2-Propenoic acid, 2-methyl-,ethyl ester
3) CAS No. - 97-63-2
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to 8240-22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 8240-19
10) Interferences - p. 8240-6
11) Accuracy and Precision - Ref. F, p. 17
12) Detector - MS, p. 8240-10
13) Retention Time - 16.32 min, Ref. F,* p. 10; 23.53 min, Ref. B,* p. 44
14) Ground Water Practical Quantitation Limit - 5 μg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Ethyl methacrylate
2) CA Name - 2-Propenoic acid, 2-methyl-,ethyl ester
3) CAS No. - 97-63-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23
12) Detector - MS, p. 8270-8
13) Retention Time - 6.08 min, Ref. F,* p. 12
14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is 10 μg/L for ground water samples.

Method 1 of 2

1) Common Name - Ethyl methanesulfonate

2) CA Name - Methanesulfonic acid, ethyl ester

3) CAS No. - 62-50-0

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8750-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 8270-17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 37 and 35; Ref. E, p. 23

12) Detector - MS, p. 8270-8

13) Retention Time - 5.33 min,* p. 8270-3; (9.62 min,** Ref. B, p. 53)

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Ethyl methanesulfonate

2) CA Name - Methanesulfonic acid, ethyl ester

3) CAS No. - 62-50-0

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-3.

Method 1 of 1

1) Common Name - Famphur*

2) CA Name - Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester

3) CAS No. - 52-85-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral; Organophosphorus Pesticide (not listed on p. Two-24 or Two-25)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 31 and 37

12) Detector - MS, p. 8270-8

13) Retention Time - 32.67 min, Ref. B,** p. 53

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*It is expected that this compound would be detectable using Method 8140 "Organophosphorus Pesticides" and Method 8150 "Chlorinated Herbicides"; however, there is no information to support this in Ref. A-F.

**Column conditions are equivalent, but not identical to those in SW-846.

***PQL of Method 8270-1 for determining an individual compound is approximately 10 μg/L fpr ground water samples.

Method 1 of 4

1) Common name - Fluoranthene
2) CA Name - Fluoranthene
3) CAS No. - 206-44-0
4) SW-846 Method No. - 8310
5) Method Title - Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8310-6
9) Calibration - p. 8310-6
10) Interferences - p. 8310-3, 8000-2 to 8000-4
11) Accuracy and Precision - p. 8310-12
12) Detector - Fluorescence, p. 8310-4
13) Retention Time - 24.5 min, p. 8310-2
14) Ground Water Practical Quantitation Limit - 2.1 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 2 of 4

1) Common name - Fluoranthene

2) CA Name - Fluoranthene

3) CAS No. - 206-44-0

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 8270-17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 23.33 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 3 of 4

1) Common name - Fluoranthene

2) CA Name - Fluoranthene

3) CAS No. - 206-44-0

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 26.5 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 22 µg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 4 of 4

1) Common name - Fluoranthene
2) CA Name - Fluoranthene
3) CAS No. - 206-44-0
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 19.8 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 1 µg/L,* p. 8100-9

---

*Based on regression equation for accuracy. A PQL of 200 µg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 1 of 4

1) Common name - Fluorene

2) CA Name - 9H-Fluorene

3) CAS No. - 86-73-7

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - UV, p. 8310-4

13) Retention Time - 21.2 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 2.1 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 2 of 4

1) Common name - Fluorene
2) CA Name - 9H-Fluorene
3) CAS No. - 86-73-7
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 16.70 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 3 of 4

1) Common name - Fluorene

2) CA Name - 9H-Fluorene

3) CAS No. - 86-73-7

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 19.5 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 4 of 4

1) Common name - Fluorene
2) CA Name - 9H-Fluorene
3) CAS No. - 86-73-7
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 12.6 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 10 µg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 µg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 1 of 3

1) Common name - Heptachlor

2) CA Name - 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-

3) CAS No. - 76-44-8

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 2.00, 3.35 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.03 μg/L,** p. 8080-2 and -3

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Heptachlor

2) CA Name - 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-

3) CAS No. - 76-44-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions are given on p. 8270-3.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common name - Heptachlor

2) CA Name - 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-

3) CAS No. - 76-44-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 23.4 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 19 µg/L,* p. 8250-3 and -5

---

*PQL = Method detection limit (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 3

1) Common name - Heptachlor epoxide

2) CA Name - 2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5,6,6a,-hexahydro-,(1aa,1bb,2a,5a,5ab,6b,6aa)

3) CAS No. - 1024-57-3

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - 3.50, 5.00 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 0.83 µg/L,** p. 8080-2 and -3

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Heptachlor epoxide

2) CA Name - 2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5,6,6a,-hexahydro-,(1aa,1bb,2a,5a,5ab,6b,6aa)

3) CAS No. - 1024-57-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3520-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Fragment ions are given on p. 8270-3.

**The PQL of Method 8270 for determining an individual is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common name - Heptachlor epoxide

2) CA Name - 2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5,6,6a,-hexahydro-,(1aa,1bb,2a,5a,5ab,6b,6aa)

3) CAS No. - 1024-57-3

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Columen Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-25

12) Detector - MS, p. 8250-6

13) Retention Time - 25.6 min, p. 8250-3

14) Ground Water Practical Quantitation Limit - 22 µg/L,* 8250-3 and -5

---

*PQL = Method detection limit (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 4

1) Common name - Hexachlorobenzene

2) CA Name - Benzene, hexachloro-

3) CAS No. - 118-74-1

4) SW-846 Method No. - 8120

5) Method Title - Chlorinated Hydrocarbons

6) Analyte Classification - Base/Neutral, p. Two-24; Chlorinated Hydrocarbons, p. Two-23

7) Preparation Method - p. 8120-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8120-7

9) Calibration - p. 8120-7, 8000-2 to 8000-4

10) Interferences - p. 8120-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8120-13

12) Detector - ECD, p. 8120-4

13) Retention Time - 5.6 min (column temp. 150°C), 10.1 min (column temp. 165°C),* p. 8120-2

14) Ground Water Practical Quantitation Limit - 0.5 µg/L,** p. 8120-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 2 of 4

1) Common name - Hexachlorobenzene
2) CA Name - Benzene, hexachloro-
3) CAS No. - 118-74-1
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24; Chlorinated Hydrocarbons, p. Two-23
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 21.0 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 3 of 4

1) Common name - Hexachlorobenzene

2) CA Name - Benzene, hexachloro-

3) CAS No. - 118-74-1

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Chlorinated Hydrocarbons, p. Two-23

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to 2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - HECD, p. 8080-4

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8080 and there is no indication in Ref. A-F that this compound can be determined by this method.

Method 4 of 4

1) Common name - Hexachlorobenzene
2) CA Name - Benzene, hexachloro-
3) CAS No. - 118-74-1
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - 8270-28
12) Detector - MS, p. 8270-8
13) Retention Time - 18.65 min, p. 8270-3
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-6

Method 1 of 3

1) Common name - Hexachlorobutadiene

2) CA Name - 1,3-Butadiene, 1,1,2,3,4,4-hexachloro-

3) CAS No. - 87-68-3

4) SW-846 Method No. - 8120

5) Method Title - Chlorinated Hydrocarbons

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8120-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8120-7

9) Calibration - p. 8120-7, 8000-2 to 8000-4

10) Interferences - p. 8120-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8120-13

12) Detector - ECD, p. 8120-4

13) Retention Time - 7.7 min, 20.0 min,* p. 8120-2

14) Ground Water Practical Quantitation Limit - 3.4 µg/L,** p. 8120-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 2 of 3

1) Common name - Hexachlorobutadiene
2) CA Name - 1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
3) CAS No. - 87-68-3
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 11.4 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 9 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water samples (p. 8250-5).

Method 3 of 3

1) Common name - Hexachlorobutadiene

2) CA Name - 1,3-Butadiene, 1,1,2,3,4,4-hexachloro-

3) CAS No. - 87-68-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 10.43 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 1 of 3

1) Common name - Hexachlorocyclopentadiene

2) CA Name - 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-

3) CAS No. - 77-47-4

4) SW-846 Method No. - 8120

5) Method Title - Chlorinated Hydrocarbons

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8120-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8120-7

9) Calibration - p. 8120-7, 8000-2 to 8000-4

10) Interferences - p. 8120-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8120-13

12) Detector - ECD, p. 8120-4

13) Retention Time - Not determined on one column, 16.5 min (column temp. 100°C),* p. 8120-2

14) Ground Water Practical Quantitation Limit - 4.0 µg/L,** p. 8120-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 2 of 3

1) Common name - Hexachlorocyclopentadiene

2) CA Name - 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-

3) CAS No. - 77-47-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - 12.60 min., p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-5

Method 3 of 3

1) Common name - Hexachlorocyclopentadiene
2) CA Name - 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
3) CAS No. - 77-47-4
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - 13.9 min,* p. 8250-3
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250-1

---

*Hexachlorocyclopentadiene is subject to thermal decomposition in the inlet of the gas chromatograph, chemical reaction in acetone solution, and photochemical decomposition.

**The PQL of Method 8250 for determining an individual is approximately 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - Hexachloroethane

2) CA Name - Ethane, hexachloro-

3) CAS No. - 67-72-1

4) SW-846 Method No. - 8120

5) Method Title - Chlorinated Hydrocarbons

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8120-6, 3510-4 to -6, 3520-4 to-5

8) Operating Parameters - p. 8120-7

9) Calibration - p. 8120-7, 8000-2 to 8000-4

10) Interferences - p. 8120-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8120-13

12) Detector - ECD, p. 8120-4

13) Retention Time - 4.9 min, 8.3 min,* p. 8120-2

14) Ground Water Practical Quantitation Limit - 0.3 µg/L,** p. 8120-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8120-2) x ground water factor (p. 8120-3).

Method 2 of 3

1) Common name - Hexachloroethane

2) CA Name - Ethane, hexachloro-

3) CAS No. - 67-72-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-28

12) Detector - MS, p. 8270-8

13) Retention Time - 7.65 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 3 of 3

1) Common name - Hexachloroethane
2) CA Name - Ethane, hexachloro-
3) CAS No. - 67-72-1
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Chlorinated Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-25
12) Detector - MS, p. 8250-6
13) Retention Time - 8.4 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 16 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 1 of 1

1) Common Name - Hexachlorophene
2) CA Name - Phenol, 2,2-methylenebis [3,4,6-trichloro-
3) CAS No. - 70-30-4
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phenols and Organic Acids (not listed on p. Two-22)
7) Preparation Method - p. 8270-11, 3510-4 to 6, 3520-4 to 5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 30 and 37; Ref. F, p. 19*
12) Detector - MS, p. 8270-8
13) Retention Time - 47.98 min, Ref. B,** p. 53; 32.93 min Ref. F,** p. 12
14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

*Ref. F, p. 19 indicates that Hexachlorophene was not recovered in a spiking study of ground water, but cites on p. 21 another spiking study in which it was recovered.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 1

1) Common Name - Hexachloropropene
2) CA Name - 1-Propene, 1,1,2,3,3,3-hexachloro-
3) CAS No. - 1888-71-7
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral (not listed on p. Two-24)
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, 34 and 37
12) Detector - MS, p. 8270-8
13) Retention Time - 12.45 min, Ref. B,* p. 53; 13.95 min, Ref. F,* p. 12
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 1

1) Common Name - 2-Hexanone
2) CA Name - 2-Hexanone
3) CAS No. - 591-78-6
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8240-10 to 8240-22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 8240-19
10) Interferences - p. 8240-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8240-10
13) Retention Time - 22.27 min, Ref. F,* p. 10
14) Ground Water Practical Quantitation Limit - 50 µg/L, p. 8240-4

---

*Column conditions are equivalent, but not identical to those in SW-846.

Method 1 of 4

1) Common name - Indeno(1,2,3-cd)pyrene

2) CA Name - Indeno[1,2,3-cd]pyrene

3) CAS No. - 193-39-5

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-2

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 37.4 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 0.43 µg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 2 of 4

1) Common name - Indeno(1,2,3-cd)pyrene

2) CA Name - Indeno[1,2,3-cd]pyrene

3) CAS No. - 193-39-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 39.52 min, p. 8270-3

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-7

Method 3 of 4

1) Common name - Indeno(1,2,3-cd)pyrene
2) CA Name - Indeno[1,2,3-cd]pyrene
3) CAS No. - 193-39-5
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 42.7 min, p. 8250-3
14) Ground Water Practical Quantitation Limit - 37 μg/L,* p. 8250-3 and -5

---

*PQL = MDL (p. 8250-3) x ground water factor (p. 8250-5).

Method 4 of 4

1) Common name - Indeno(1,2,3-cd)pyrene
2) CA Name - Indeno[1,2,3-cd]pyrene
3) CAS No. - 193-39-5
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 36.2 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 1 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 1 of 1

1) Common Name - Isodrin*

2) CA Name - 1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1aa,4a,4ab,5b,8b,8ab)-

3) CAS No. - 465-73-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral; Pesticide and PCB (not listed on p. Two-24 or Two-26)

7) Preparation Method - p. 8270-11, 3510-4 to 6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 32 and 37

12) Detector - MS, p. 8270-8

13) Retention Time - 28.95 min, Ref. B,** p. 54

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*It is expected that isodrin would be detectable using Method 8080 "Organochlorine Pesticides and PCBs"; however, there is no evidence to support this claim in Ref. A, B, C, D, E, or F.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common Name - Isophorone
2) CA Name - 2-Cyclohexen-1-one, 3,5,5-trimethyl-
3) CAS No. - 78-59-1
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Nitroaromtics & Cyclic Ketones, Two-22; Base/Neutrals, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-29
12) Detector - MS, p. 8270-8
13) Retention Time - 8.53 min, p. 8270-4
14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-5

Method 2 of 3

1) Common Name - Isophorone
2) CA Name - 2-Cyclohexen-1-one, 3,5,5-trimethyl-
3) CAS No. - 78-59-1
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Nitroaromatics & Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 11.9 min, p. 8250-4
14) Ground Water Practical Quantitation Limit - 22 µg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 3 (Detector 1) of 3

1) Common Name - Isophorone
2) CA Name - 2-Cyclohexen-1-one, 3,5,5-trimethyl-
3) CAS No. - 78-59-1
4) SW-846 Method No. - 8090
5) Method Title - Nitroaromatics and Cyclic Ketones
6) Analyte Classification - Nitroaromatics & Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8090-7
9) Calibration - p. 8090-7, 8000-2 to -4
10) Interferences - p. 8090-1, 3500-1 to 2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8090-13
12) Detector - FID, p. 8090-3
13) Retention Time - 4.49, 5.72 min,* p. 8090-2
14) Ground Water Practical Quantitation Limit - 57 µg/L,** p. 8090-2

*Retention times from two columns.

**PQL = MDL (p. 8090-2) x ground water factor (p. 8090-2).

Method 3 (Detector 2) of 3

1) Common Name - Isophorone
2) CA Name - 2-Cyclohexen-1-one, 3,5,5-trimethyl-
3) CAS No. - 78-59-1
4) SW-846 Method No. - Nitroaromatics and Cyclic Ketones
5) Method Title - Nitroaromatics and Cyclic Ketones
6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base Neutrals, p. Two-24
7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8090-7
9) Calibration - p. 8090-7, 8000-2 to -4
10) Interferences - p. 8090-1, 3500-1 to 2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8090-13
12) Detector - ECD, p. 8090-3
13) Retention Time - 4.49, 5.72 min,* p. 8090-2
14) Ground Water Practical Quantitation Limit - 157 µg/L,** p. 8090-2

---

*Retention times from two columns.

**PQL = MDL (p. 8090-2) x ground water factor (p. 8090-2).

Method 1 of 1

1) Common Name - Isosafrole

2) CA Name - 1,3-Benzodioxole, 5-(1-propenyl)-

3) CAS No. - 120-58-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolavile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 32 and p. 37*

12) Detector - MS, p. 8270-8

13) Retention Time - 15.60 min, Ref. B,* p. 54; 16.63 min. Ref. F,* p. 13

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 2

1) Common Name - Kepone*

2) CA Name - 1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-

3) CAS No. - 143-50-0

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organochlorine Pesticides and PCB's, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 37 and 46

12) Detector - MS, p. 8270-8

13) Retention Time - 28.18 min, Ref. B,* p. 54

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*Column conditions are equivalent, but not equivalent to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Kepone*

2) CA Name - 1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-

3) CAS No. - 143-50-0

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCB's

6) Analyte Classification - Organochlorine Pesticides and PCB's, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to 8000-4

10) Interferences - p. 8080-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - HECD, p. 8080-4

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*There is no evidence to support that Kepone is detectable using Method 8080.

Table G-11

Method 1 of 3

1) Common name - Lead
2) CA Name - Lead
3) CAS No. - (Total)
4) SW-846 Method No. - 6010
5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4
8) Operating Parameters - p. 6010-5
9) Calibration - p. 6010-11 to -15
10) Interferences - p. 6010-3 to -5
11) Accuracy and Precision - p. 6010-16
12) Detector - ICP, p. 6010-5
13) Wavelength - 220.353 nm, p. 6010-2
14) Ground Water Practical Quantitation Limit - 420 μg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit (p. 6010-2).

Method 2 of 3

1) Common name - Lead

2) CA Name - Lead

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 220.353 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 24 µg/L,* p. 6010-16

---

*Based on results of analyses of standard samples.
PQL= 400 µg/L based on 10 times detection limit given on p. 6010-2.

Method 3 of 3

1) Common name - Lead

2) CA Name - Lead

3) CAS No. - (Total)

4) SW-846 Method No. - 7420

5) Method Title - Lead (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7420-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7420-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7420-1, 7000-3 to -4

11) Accuracy and Precision - p. 7420-2

12) Detector - AAS, p. 7420-1, 7000-6

13) Wavelength - 283.3 nm (primary); 217.0 nm (alternate), p. 7420-1

14) Ground Water Practical Quantitation Limit - 1,000 µg/L,* p. 7420-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 2

1) Common name - Manganese
2) CA Name - Manganese
3) CAS No. - (Total)
4) SW-846 Method No. - 6010
5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4
8) Operating Parameters - p. 6010-5
9) Calibration - p. 6010-11 to -15
10) Interferences - p. 6010-3 to -5
11) Accuracy and Precision - p. 6010-16
12) Detector - ICP, p. 6010-5
13) Wavelength - 257.610 nm, p. 6010-2
14) Ground Water Practical Quantitation Limit - 20 µg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 2

1) Common name - Manganese

2) CA Name - Manganese

3) CAS No. - (Total)

4) SW-846 Method No. - 7460

5) Method Title - Manganese (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7460-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7460-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7460-1, 7000-3 to -4

11) Accuracy and Precision - p. 7460-2

12) Detector - AAS, p. 7460-1, 7000-6

13) Wavelength - 279.5 nm (primary); 403.1 nm (alternate), p. 7460-1

14) Ground Water Practical Quantitation Limit - 100 μg/L,* p. 7460-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 1

1) Common name - Mercury
2) CA Name - Mercury
3) CAS No. - (Total)
4) SW-846 Method No. - 7470
5) Method Title - Mercury in Liquid Waste (Manual Cold-Vapor Technique)
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 7470-5
8) Operating Parameters - p. 7470-2
9) Calibration - p. 7470-5, 7000-7 to -8
10) Interferences - p. 7470-1 to -2
11) Accuracy and Precision - p. 7470-7
12) Detector - AAS, p. 7470-2
13) Wavelength - 253.7 nm, p. 7470-1
14) Ground Water Practical Quantitation Limit - 2 μg/L,* p. 7470-1

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 1

1) Common Name - Methapyrilene

2) CA Name - 1,2-Ethanediamine, N,N-dimethyl-N'-(2-thienylmethyl)-

3) CAS No. - 91-80-5

4) SW-846 Method No. - 8270

5) Method Title - GS/MS for Semivolatile Organics Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 29 and 37; Ref. F, p. 19; Ref. E, p. 23

12) Detector - MS, p. 8270-8

13) Retention Time - 28.77 min, Ref. B,* p. 54; 24.88 min, Ref. F,* p. 13

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common name - Methoxychlor

2) CA Name - Benzene, 1,1'-(2,2,2,trichloroethylidene)bis[4-methoxy-

3) CAS No. - 72-43-5

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - HECD, p. 8080-4

13) Retention Time - 18.20, 26.60 min,* p. 8080-2

14) Ground Water Practical Quantitation Limit - 1.76 µg/L,** p. 8080-2 and -3

---

*Retention times from two columns.

**PQL = Detection limit (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Methoxychlor
2) CA Name - Benzene, 1,1'-(2,2,2,trichloroethylidene)bis[4-methoxy-
3) CAS No. - 72-43-5
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 32 and 37
12) Detector - MS, p. 8270-8
13) Retention Time - 33.55 min, Ref. B,* p. 54
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common name - Methoxychlor

2) CA Name - Benzene, 1,1'-(2,2,2,trichloroethylidene)bis[4-methoxy-

3) CAS No. - 72-43-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common Name - Methyl bromide, Bromomethane
2) CA Name - Methane, bromo-
3) CAS No. - 74-83-9
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 3.1 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8240-4

Method 2 of 2

1) Common Name - Methyl bromide, Bromomethane
2) CA Name - Methane, bromo-
3) CAS No. - 74-83-9
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Organic Volatiles
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - Ref. D, p. 61
12) Detector - HECD, p. 8010-4
13) Retention Time - 2 min,* p. 8010-9
14) Ground Water Practical Quantitation Limit - 20 µg/L, Ref. D, p. 61

---

*Retention time read from chromatogram.

Method 1 of 2

1) Common Name - Methyl chloride; Chloromethane

2) CA Name - Methane, chloro-

3) CAS No. - 74-87-3

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 1.5, 5.28 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 0.8 µg/L,** p. 8010-2 and 8010-3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Methyl chloride; Chloromethane

2) CA Name - Methane, chloro-

3) CAS No. - 74-87-3

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 2.3 min, p. 8240-2

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8240-4

Method 1 of 3

1) Common name - 3-Methylcholanthrene

2) CA Name - Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-

3) CAS No. - 56-49-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. C, p. 32 and 37

12) Detector - MS, p. 8270-8

13) Retention Time - 31.14 min,* p. 8270-4 (34.52 min, Ref. F,** p. 13; 35.07 min, Ref. B,** p. 54)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 3

1) Common name - 3-Methylcholanthrene

2) CA Name - Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-

3) CAS No. - 56-49-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolative Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-11

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 3 of 3

1) Common name - 3-Methylcholanthrene

2) CA Name - Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-

3) CAS No. - 56-49-5

4) SW-846 Method No. - 8100

5) Method Title - GC of Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8100-5

9) Calibration - p. 8100-5, 8000-2 to 8000-4

10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - FID, p. 8100-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 2

1) Common Name - Methylene bromide, Dibromomethane

2) CA Name - Methane, dibromo-

3) CAS No. - 74-95-3

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - Ref. F, p. 17

12) Detector - MS, p. 8240-10

13) Retention Time - 12.53 min, Ref. B,** p. 44; 12.60 min, Ref. F,** p. 9

14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Methylene bromide; Dibromomethane

2) CA Name - Methane, dibromo-

3) CAS No. - 74-95-3

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - Ref. D, p. 61

12) Detector - HECD, p. 8010-4

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 15 μg/L, Ref. D, p. 61

Method 1 of 2

1) Common Name - Methylene chloride; Dichloromethane
2) CA Name - Methane, dichloro-
3) CAS No. - 75-09-2
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 6.4 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 2 of 2

1) Common Name - Methylene chloride; Dichloromethane
2) CA Name - Methane, dichloro-
3) CAS No. - 75-09-2
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - Ref. D, p. 62
12) Detector - HECD, p. 8010-1
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 4 μg/L, Ref. D, p. 62

Method 1 of 2

1) Common Name - Methyl ethyl ketone; MEK

2) CA Name - 2-Butanone

3) CAS No. - 78-93-3

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Nonhalogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 12.00 min, Ref. F,* p. 10; 12.20 min, Ref. B,* p. 44

14) Ground Water Practical Quantitation Limit - 100 μg/L, p. 8240-4

---

*Column conditions are equivalent, but not identical to those in SW-846.

Method 2 of 2

1) Common Name - Methyl ethyl ketone; MEK

2) CA Name - 2-Butanone

3) CAS No. - 78-93-3

4) SW-846 Method No. - 8015

5) Method Title - Nonhalogenated Volatile Organics

6) Analyte Classification - Nonhalogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8015-5, 5030-12 to -14

8) Operating Parameters - p. 8015-5 to -6

9) Calibration - p. 8015-6, 8000-2 to -4

10) Interferences - p. 8015-1, 5030-2, 8000-1

11) Accuracy and Precision - Ref. D, p. 68

12) Detector - FID p. 8015-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 30 µg/L,* Ref. D, p. 68

Method 1 of 2

1) Common Name - Methyl iodide; Iodomethane
2) CA Name - Methane, iodo-
3) CAS No. - 74-88-4
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to 8240-22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 8240-19
10) Interferences - p. 8240-6
11) Accuracy and Precision - Ref. F, p. 17
12) Detector - MS, p. 8240-10
13) Retention Time - 6.3 min, Ref. F,* p. 10; 5.37 min, Ref. B,* p. 44
14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 µg/L for ground water samples.

Method 2 of 2

1) Common Name - Methyl iodide; Iodomethane
2) CA Name - Methane, iodo-
3) CAS No. - 74-88-4
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8010-7, 5030-12 to 5030-14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - Ref. D, p. 62
12) Detector - HECD, p. 8010-1
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 40 µg/L, Ref. D, p. 62

Method 1 of 3

1) Common Name - Methyl methacrylate*

2) CA Name - 2-Propenoic acid, 2-methyl-, methyl ester

3) CAS No. - 80-62-6

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Volatiles (not listed on p. Two-28); Base/Neutral (not listed p. Two-24)

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 19.77 min,** Ref. B., p. 44

14) Ground Water Practical Quantitation Limit - 5 µg/L,*** p. 8240-1

---

*According to Ref. F, p. 5, a standard containing this compound was not detectable by Method 8240.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8240 for an individual compound is approximately 5 µg/L for ground water samples.

Method 2 of 3

1) Common Name - Methyl methacrylate

2) CA Name - 2-Propenoic acid, 2-methyl-, methyl ester

3) CAS No. - 80-62-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24); Volatiles (not listed on p. Two-28)

7) Preparation - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and precision - Ref. F, p. 19

12) Detector - MS, p. 8270-8

13) Retention Time - 4.90 min, Ref. F, p. 13

14) Ground Water Practical Quantitation Limit - 10 µg/L,* p. 8270-1

---

*The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common Name - Methyl methacrylate
2) CA Name - 2-Propenoic acid, 2-methyl-, methyl ester
3) CAS No. - 80-62-6
4) SW-846 Method No. - 8015
5) Method Title - Nonhalogenated Volatile Organics
6) Analyte Classification - Nonhalogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation - p. 8015-15, 5030-12 to -14
8) Operating Parameters - p. 8015-5 to -6
9) Calibration - p. 8015-6, 8000-2 to -4
10) Interferences - p. 8015-1, 5030-2, 8000-1
11) Accuracy and precision - Ref. D, p. 68
12) Detector - FID, p. 8015-3
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - 4 μg/L,* Ref. D, p. 68

Method 1 of 2

1) Common Name - Methyl methanesulfonate

2) CA Name - Methanesulfonic acid, methyl ester

3) CAS No. - 66-27-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 31 and p. 37

12) Detector - MS, p. 8270-8

13) Retention Time - 4.32 min,* p. 8270-4 (7.48 min, Ref. B, p. 54; 7.45 min, Ref. F, p. 13)

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Estimated retention time

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Methyl Methanesulfonate
2) CA Name - Methanesulfonic acid, methyl ester
3) CAS No. - 66-27-3
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common Name - 2-Methylnaphthalene

2) CA Name - Naphthalene, 2-methyl-

3) CAS No. - 91-57-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 32 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 11.87 min, p.8270-4

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 2

1) Common Name - 2-Methylnaphthalene
2) CA Name - Naphthalene, 2-methyl-
3) CAS No. - 91-57-6
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 3

1) Common name - Methyl parathion, (Parathion methyl)

2) CA Name - Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl)ester

3) CAS No. - 298-00-0

4) SW-846 Method No. - 8140

5) Method Title - Organophosphorus Pesticides

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8140-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8140-7

9) Calibration - p. 8140-7, 8000-2 to -4

10) Interferences - p. 8140-1 and -4, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8140-15

12) Detector - N/P, p. 8140-4

13) Retention Time - 3.37 min, p. 8140-2

14) Ground Water Practical Quantitation Limit - 0.3 μg/L,* p. 8140-2 and -3

*PQL = MDL (p. 8140-2) x ground water factor (p. 8140-3).

Method 2 of 3

1) Common name - Methyl parathion, (Parathion methyl)

2) CA Name - Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl)ester

3) CAS No. - 298-00-0

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 8270-17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 38 and 46

12) Detector - MS, p. 8270-8

13) Retention Time - 27.03 min,* Ref. B, p. 54

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common name - Methyl parathion*
2) CA Name - Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl)ester
3) CAS No. - 298-00-0
4) SW-846 Method No. - 8150
5) Method Title - Chlorinated Herbicides
6) Analyte Classification - Organophosphorus Pesticides, p. Two-25
7) Preparation Method - p. 8150-10 to -13
8) Operating Parameters - p. 8150-13
9) Calibration - p. 8150-13, 8000-2 to -4
10) Interferences - p. 8150-1 and -3, 8000-1
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - ECD, p. 8150-3
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8150 and there is no indication that this compound can be determined by this method.

Method 1 of 2

1) Common Name - 4-Methyl-2-pentanone; Methyl isobutyl ketone; (MIBK)
2) CA Name - 2-Pentanone, 4-methyl-
3) CAS No. - 108-10-1
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Nonhalogenated Volatiles, p. Two-27
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8240-10
13) Retention Time - 20.58 min, Ref. F, p. 10
14) Ground Water Practical Quantitation Limit - 50 µg/L, p. 8240-4

Method 2 of 2

1) Common Name - 4-Methyl-2-pentanone; Methyl isobutyl ketone; (MIBK)
2) CA Name - 2-Pentanone, 4-methyl-
3) CAS No. - 108-10-1
4) SW-846 Method No. - 8015
5) Method Title - Nonhalogenated Volatile Organics
6) Analyte Classification - Nonhalogenated Volatiles; p. Two-27
7) Preparation Method - p. 8015-5, 5030-12 to -14
8) Operating Parameters - p. 8015-5 to -6
9) Calibration - p. 8015-6, 8000-2 to -4
10) Interferences - p. 8015-1, 5030-2, 8000-1
11) Accuracy and Precision - None
12) Detector - FID, p. 8015-3
13) Retention Time - No data, (References A-F checked)
14) Ground Water Practical Quantitation Limit - None. Compound could not be detected by this method. Ref. D, p. 68

Method 1 of 4

1) Common name - Naphthalene

2) CA Name - Naphthalene

3) CAS No. - 91-20-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/ Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 9.82 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 4

1) Common name - Naphthalene
2) CA Name - Naphthalene
3) CAS No. - 91-20-3
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 12.1 min, p. 8250-4
14) Ground Water Practical Quantitation Limit - 16 μg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 3 of 4

1) Common name - Naphthalene

2) CA Name - Naphthalene

3) CAS No. - 91-20-3

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - UV, p. 8310-4

13) Retention Time - 16.6 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 18 μg/L,* 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 4 of 4

1) Common name - Naphthalene
2) CA Name - Naphthalene
3) CAS No. - 91-20-3
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 4.5 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8100-6 to -9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 1 of 2

1) Common name - 1,4-Naphthoquinone

2) CA Name - 1,4-Naphthalenedione

3) CAS No. - 130-15-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 30 & 38

12) Detector - MS, p. 8270-8

13) Retention Time - 17.28 min,* Ref. F, p. 13; 16.23 min,* Ref. B, p. 54

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples

Method 2 of 2

1) Common name - 1,4-Naphthoquinone

2) CA Name - 1,4-Naphthalenedione

3) CAS No. - 130-15-4

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and Cyclic Ketones

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8090-7, 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD & FIC, p. 8090-2

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 2

1) Common name - 1-Naphthylamine

2) CA Name - 1-Naphthalenamine

3) CAS No. - 134-32-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 19; Ref. E, p. 23; Ref. C, p. 29 & 38

12) Detector - MS, p. 8270-8

13) Retention Time - 15.80 min,* p. 8270-4 (18.20 min,** Ref. B, p. 54; 19.12 min, Ref. F,** p. 13)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common name - 1-Naphthylamine
2) CA Name - 1-Naphthalenamine
3) CAS No. - 134-32-7
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common name - 2-Naphthylamine

2) CA Name - 2-Naphthalenamine

3) CAS No. - 91-59-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. C, p. 33 & 36; Ref. E, p. 24

12) Detector - MS, p. 8270-8

13) Retention Time - 16.00 min,* p. 8270-4, (19.27 min,** Ref. F, p. 13)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common name - 2-Naphthylamine
2) CA Name - 2-Naphthalenamine
3) CAS No. - 91-59-8
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common name - Nickel

2) CA Name - Nickel

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 231.604 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 30 μg/L, p. 6010-16

*Based on results of analyses of standard samples.
PQL = 150 μg/L based on 10 times detection limit given on p. 6010-2.

Method 2 of 2

1) Common name - Nickel

2) CA Name - Nickel

3) CAS No. - (Total)

4) SW-846 Method No. - 7520

5) Method Title - Nickel (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7520-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7520-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7520-1, 7000-3 to -4

11) Accuracy and Precision - p. 7520-2

12) Detector - AAS, p. 7520-1, 7000-6

13) Wavelength - 232.0 nm (primary); 352.4 nm (alternate), p. 7520-1

14) Ground Water Practical Quantitation Limit - 400 μg/L,* p. 7520-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 2

1) Common name - o-Nitroaniline; (2-Nitroaniline)

2) CA Name - Benzenamine, 2-nitro-

3) CAS No. - 88-74-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 33 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 13.75 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 50 μg/L, p. 8270-6

Method 2 of 2

1) Common name - o-Nitroaniline; (2-Nitroaniline)
2) CA Name - Benzenamine, 2-nitro-
3) CAS No. - 88-74-4
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common name - m-Nitroaniline; (3-Nitroaniline)

2) CA Name - Benzenamine, 3-nitro-

3) CAS No. - 99-09-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 29 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 15.02 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 50 µg/L, p. 8270-6

Method 2 of 2

1) Common name - m-Nitroaniline; (3-Nitroaniline)

2) CA Name - Benzenamine, 3-nitro-

3) CAS No. - 99-09-2

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common name - p-Nitroaniline; (4-Nitroaniline)

2) CA Name - Benzenamine, 4-nitro-

3) CAS No. - 100-01-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 29 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 16.90 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 50 µg/L, p. 8270-6

Method 2 of 2

1) Common name - p-Nitroaniline; (4-Nitroaniline)
2) CA Name - Benzenamine, 4-nitro-
3) CAS No. - 100-01-6
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 3

1) Common Name - Nitrobenzene

2) CA Name - Benzene, nitro-

3) CAS No. - 98-95-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Nitroaromatic and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 7.87 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 3

1) Common Name - Nitrobenzene
2) CA Name - Benzene, nitro-
3) CAS No. - 98-95-3
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Nitroaromatic and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to -14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 11.1 min, p. 8250-4
14) Ground Water Practical Quantitation Limit - 19 μg/L,* p. 8250-4 to -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 3 (Detector 1) of 3

1) Common Name - Nitrobenzene

2) CA Name - Benzene, nitro-

3) CAS No. - 98-95-3

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and Cyclic Ketones

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8090-13

12) Detector - FID, p. 8090-3

13) Retention Time - 3.31, 4.31 min,* p. 8090-2

14) Ground Water Practical Limititation Limit - 36 μg/L,** p. 8090-2

*Retention times from two columns.

**PQL = MDL (p. 8090-2) x ground water factor (p. 8090-2).

Method 3 (Detector 2) of 3

1) Common Name - Nitrobenzene

2) CA Name - Benzene, nitro-

3) CAS No. - 98-95-3

4) SW-846 Method No. - 8090

5) Method Title - Nitroaromatics and cyclic ketones

6) Analyte Classification - Nitroaromatics and Cyclic Ketones, p. Two-22; Base/Neutral, p. Two-24

7) Preparation Method - p. 8090-1, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8090-7

9) Calibration - p. 8090-7, 8000-2 to -4

10) Interferences - p. 8090-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8090-13

12) Detector - ECD, p. 8090-3

13) Retention Time - 3.31, 4.31 min,* p. 8090-2

14) Ground Water Practical Quantitation Limit - 137 µg/L,** p. 8090-2

---

*Retention times from two columns.

**PQL = MDL (p. 8090-2) x ground water factor (p. 8090-2).

Method 1 (Detector 1) of 3

1) Common name - o-Nitrophenol; (2-Nitrophenol)

2) CA Name - Phenol, 2-nitro-

3) CAS No. - 88-75-5

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - ECD, p. 8040-3

13) Retention Time - 9.1 min, p. 8040-9

14) Ground Water Practical Quantitation Limit - 7.7 µg/L, p. 8040-2 and -9

*PQL = MDL (p. 8040-9) x Ground water factor (p. 8040-2)

Method 1 (Detector 2) of 3

1) Common name - o-Nitrophenol; (2-Nitrophenol)

2) CA Name - Phenol, 2-nitro-

3) CAS No. - 88-75-5

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - FID, p. 8040-3

13) Retention Time - 2.0 min, p. 8040-2

14) Ground Water Practical Quantitation Limit - 4.5 μg/L, p. 8040-2*

*PQL = MDL (p. 8040-2) x Ground water factor (p. 8040-2)

Method 2 of 3

1) Common name - o-Nitrophenol, (2-Nitrophenol)
2) CA Name - Phenol, 2-nitro-
3) CAS No. - 88-75-5
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-29
12) Detector - MS, p. 8270-8
13) Retention Time - 8.75 min., p. 8270-4
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 3 of 3

1) Common name - o-Nitrophenol, (2-Nitrophenol)

2) CA Name - Phenol, 2-nitro-

3) CAS No. - 88-75-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-26

12) Detector - MS, p. 8250-6

13) Retention Time - 6.5 min, p. 8250-4

14) Ground Water Practical Quantitation Limit - 36 μg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x Groundwater factor (p. 8250-5)

Method 1 (Detector 1) of 3

1) Common name - p-Nitrophenol; (4-Nitrophenol)

2) CA Name - Phenol, 4-nitro-

3) CAS No. - 100-02-7

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - ECD, p. 8040-3

13) Retention Time - 14.0 min, p. 8040-9

14) Ground Water Practical Quantitation Limit - 7.0 µg/L,* p. 8040-9 and -2

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common name - p-Nitrophenol; (4-Nitrophenol)

2) CA Name - Phenol, 4-nitro-

3) CAS No. - 100-02-7

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - FID, p. 8040-3

13) Retention Time - 24.25 min, p. 8040-2

14) Ground Water Practical Quantitation Limit - 28 µg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common name - p-Nitrophenol; (4-Nitrophenol)
2) CA Name - Phenol, 4-nitro-
3) CAS No. - 100-02-7
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 20.3 min, p. 8250-4
14) Ground Water Practical Quantitation Limit - 24 μg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common name - p-Nitrophenol; (4-Nitrophenol)

2) CA Name - Phenol, 4-nitro-

3) CAS No. - 100-02-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 15.80 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 50 µg/L, p. 8270-6

Method 1 of 1

1) Common name - 4-Nitroquinoline-1-oxide

2) CA Name - Quinoline, 4-nitro-1-oxide

3) CAS No. - 56-57-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 31 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 21.73 min, Ref. B, p. 54

14) Ground Water Practical Quantitation Limit - 10 μg/L,* p. 8270-1

---

*The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 2

1) Common name - N-Nitrosodi-n-butylamine

2) CA Name - 1-Butanamine, N-butyl-N-nitroso-

3) CAS No. - 924-16-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24; Ref. C, p. 31 & 38

12) Detector - MS, p. 8270-8

13) Retention Time - 10.9 min,* p. 8270-4 (16.73 min, Ref. B,** p. 54; 14.8 min, Ref. F,** p. 13)

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - N-Nitrosodi-n-butylamine
2) CA Name - 1-Butanamine, N-butyl-N-nitroso-
3) CAS No. - 924-16-3
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data, Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 1

1) Common Name - N-Nitrosodiethylamine

2) CA Name - Ethanamine, N-ethyl-N-nitroso-

3) CAS No. - 55-18-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24; Ref. C, p. 29 & 38

12) Detector - MS, p. 8270-8

13) Retention Time - 8.70 min,* Ref. B, p. 55; 8.17 min,* Ref. F, p. 13

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 2

1) Common name - N-Nitrosodimethylamine

2) CA Name - Methanamine, N-methyl-N-nitroso-

3) CAS No. - 62-75-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 31 and 38

12) Detector - MS, p. 8270-8

13) Retention Time - 5.37 min,* Ref. F, p. 13

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - N-Nitrosodimethylamine
2) CA Name - Methanamine, N-methyl-N-nitroso-
3) CAS No. - 62-75-9
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*N-Nitrosodimethylamine is difficult to separate from the solvent under the chromatographic conditions described in Method 8250 (p. 8250-1).

Method 1 of 2

1) Common name - N-Nitrosodiphenylamine
2) CA Name - Benzenamine, N-nitroso-N-phenyl-
3) CAS No. - 86-30-6
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8270-8
13) Retention Time - 17.17 min, p. 8270-4
14) Ground Water Practical Quantitation Limit - 10 $\mu$g/L, p. 8270-6

Method 2 of 2

1) Common name - N-Nitrosodiphenylamine*
2) CA Name - Benzenamine, N-nitroso-N-phenyl-
3) CAS No. - 86-30-6
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - 20.5 min, p. 8250-4
14) Ground Water Practical Quantitation Limit - 19 µg/L,** p. 8250-4 & 8250-5

---

*N-Nitrosodiphenylamine decomposes in the gas chromatograph inlet and cannot be separated from diphenylamine.

**PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 1 of 1

1) Common Name - N-Nitrosodipropylamine; Di-n-propylnitrosamine
2) CA Name - 1-Propanamine, N-nitroso-N-propyl-
3) CAS No. - 621-64-7
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-29
12) Detector - MS, p. 8270-8
13) Retention Time - 7.55 min, p. 8270-4
14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-5

Method 1 of 1

1) Common Name - N-Nitrosomethylethylamine

2) CA Name - Ethanamine, N-methyl-N-nitroso-

3) CAS No. - 10595-95-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20,* Ref. C, p. 33 and 39; Ref. E, p. 24

12) Detector - MS, p. 8270-8

13) Retention Time - 6.97 min, Ref. B,** p. 55; 6.83 min,** Ref. F,* p. 13

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*In Ref. F, there is a typographical error and N-Nitrosomethylethylamine appears as N-Nitrosodimethylethylamine.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 1

1) Common Name - N-Nitrosomorpholine

2) CA Name - Morpholine, 4-nitroso-

3) CAS No. - 59-89-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. C, p. 34 and 39; Ref. E, p. 24

12) Detector - MS, p. 8270-8

13) Retention Time - 11.48 min,* Ref. F, p. 13

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 1

1) Common name - N-Nitrosonornicotine

2) CA Name - Pyridine,3-(1-nitroso-2-pyrrolidinyl)-

3) CAS No. - 16543-55-8

4) SW-846 Method No. - None

5) Method Title - None

6) Analyte Classification - Unknown, probably Base/Neutral (not listed on p. Two-24)

7) Preparation Method - None

8) Operating Parameters - None

9) Calibration - None

10) Interferences - None

11) Accuracy and Precision - None

12) Detector - None

13) Retention Time - None

14) Ground Water Practical Quantitation Limit - None

Note: Reference B reports that the compound is not commercially available. No other data indicating or suggesting appropriate determinative techniques could be found in this or the other references (A,C,D,E, and F).

Method 1 of 2

1) Common name - N-Nitrosopiperidine

2) CA Name - Piperidine, 1-nitroso-

3) CAS No. - 100-75-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24; Ref. C, p. 29 & 39

12) Detector - MS, p. 8270-8

13) Retention Time - 12.23 min,* Ref. F, p. 13; 13.55 min,* Ref. B, p. 55

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - N-Nitrosopiperidine

2) CA Name - Piperidine, 1-nitroso-

3) CAS No. - 100-75-4

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 1

1) Common Name - N-Nitrosopyrrolidine
2) CA Name - Pyrrolidine, 1-nitroso-
3) CAS No. - 930-55-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Cpailary Column Technique
6) Analyte Classification - Base/Neutral (not listed on p. Two-24)
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 20; Ref. C, p. 29 and 39; Ref. E, p. 24
12) Detector - MS, p. 8270-8
13) Retention Time - 12.65 min,* Ref. B, p. 55; 11.42 min,* p. Ref. F, p. 13
14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 1

1) Common Name - 5-Nitro-o-toluidine
2) CA Name - Benzenamine, 2-methyl-5-nitro-
3) CAS No. - 99-55-8
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral (not listed on p. Two-24)
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24
12) Detector - MS, p. 8270-8
13) Retention Time - 19.27 min,* Ref. B, p. 54; 19.92 min,* Ref. F, p. 13
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 1

1) Common name - Octamethyl pyrophosphoramide

2) CA Name - Diphosphoramide, octamethyl

3) CAS No. - 152-16-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (Not listed on p. Two-24; classification based on analytical judgment)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data available, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - 24.93 min, Ref. B,* p. 55

14) Ground Water Practical Quantitation Limit - No data

---

*Response factor judged to be too low to permit quantification.

Method 1 of 3

1) Common name - Parathion*

2) CA Name - Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl)ester

3) CAS No. - 56-38-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 37 and 46

12) Detector - MS, p. 8270-8

13) Retention Time - 28.40 min,* Ref. B, p. 55

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 3

1) Common name - Parathion*

2) CA Name - Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl)ester

3) CAS No. - 56-38-2

4) SW-846 Method No. - 8140

5) Method Title - Organophosphorus Pesticides

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8140-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8140-7

9) Calibration - p. 8140-7, 8000-2 to -4

10) Interferences - p. 8140-1 and -4, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - N/P, p. 8140-4

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8140 and there is no indication that this compound can be determined by this method.

Method 3 of 3

1) Common name - Parathion*

2) CA Name - Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl)ester

3) CAS No. - 56-38-2

4) SW-846 Method No. - 8150

5) Method Title - Chlorinated Herbicides

6) Analyte Classification - Organophosphorous Pesticides, p. Two-25

7) Preparation Method - p. 8150-10 to -13

8) Operating Parameters - p. 8150-13

9) Calibration - p. 8150-13, 8000-2 to -4

10) Interferences - p. 8150-1 and -3, 8000-1

11) Accuracy and Precision - No data, Ref. A-F

12) Detector - ECD, p. 8150-3

13) Retention Time - No data, Ref. A-F

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F

---

*This compound does not appear in SW-846 Method 8150 and there is no indication that this compound can be determined by this method.

Method 1 of 3

1) Common name - Polychlorinated biphenyl PCB 1016; Arochlor 1016

2) CA Name - Aroclor 1016

3) CAS No. - 12674-11-2

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 18 to 30 min, p. 8250-2*

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8250-1

---

*This "compound" is a mixture of various isomers.

**The PQL of Method 8250 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 3

1) Common name - Polychlorinated biphenyl PCB 1016; Arochlor 1016

2) CA Name - Aroclor 1016

3) CAS No. - 12674-11-2

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8080-23, -25, and -26

---

*Retention time not determined due to multiple peak response.

**Based on regression equation for accuracy.

Method 3 of 3

1) Common name - PCB 1016; Arochlor 1016 Polychlorinated biphenyl

2) CA Name - Aroclor 1016

3) CAS No. - 12674-11-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*Fragmentations listed on p. 8270-2

**The PQL of Method 8270 for determining an individual compound is approximately 10 ug/L for ground water samples.

Method 1 of 3

Polychlorinated biphenyl

1) Common name - PCB 1221; Arochlor 1221

2) CA Name - Aroclor 1221

3) CAS No. - 11104-28-2

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to 3520-5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8080-23, -25, and -26

---

*Retention time not determined due to multiple response.

**Based on regression equation for accuracy.

Method 2 of 3

1) Common name - Polychlorinated biphenyl PCB 1221; Arochlor 1221

2) CA Name - Aroclor 1221

3) CAS No. - 11104-28-2

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 15 to 30 min,* p. 8250-2

14) Ground Water Practical Quantitation Limit - 300 µg/L,** p. 8250-2 and -5

---

*This "compound" is a mixture of various isomers.

**PQL = Method detection limit (p. 8250-2) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common name - Polychlorinated biphenyl PCB 1221; Arochlor 1221

2) CA Name - Aroclor 1221

3) CAS No. - 11104-28-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - Polychlorinated biphenyl PCB 1232; Arochlor 1232

2) CA Name - Aroclor 1232

3) CAS No. - 11141-16-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24, Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 15 to 32 min,* p. 8250-2

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8250-1

---

*This "compound" is a mixture of various isomers.

**The PQL of Method 8250 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 3

Polychlorinated biphenyl

1) Common name - PCB 1232; Arochlor 1232

2) CA Name - Aroclor 1232

3) CAS No. - 11141-16-5

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 50 µg/L,** p. 8080-26

---

*Retention time not determined due to multiple peak response.

**Based on regression equation for accuracy.

Method 3 of 3

1) Common name - Polychlorinated biphenyl PCB 1232; Arochlor 1232

2) CA Name - Aroclor 1232

3) CAS No. - 11141-16-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

Polychlorinated biphenyl
1) Common name - PCB 1242; Arochlor 1242

2) CA Name - Aroclor 1242

3) CAS No. - 53469-21-9

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to 6, 3520-4 to 5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to 4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 0.65 µg/L,** p. 8080-2 and -3

---

*Retention time not determined due to multiple peak response.

**PQL = MDL (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Polychlorinated biphenyl PCB 1242; Arochlor 1242

2) CA Name - Aroclor 1242

3) CAS No. - 53469-21-9

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 15 to 32 min,* p. 8250-2

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250-1

---

*This "compound" is a mixture of various isomers.

**The PQL of Method 8250 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

Polychlorinated biphenyl

1) Common name - PCB 1242; Arochlor 1242

2) CA Name - Aroclor 1242

3) CAS No. - 53469-21-9

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

Polychlorinated biphenyl

1) Common name - PCB 1248; Arochlor 1248

2) CA Name - Aroclor 1248

3) CAS No. - 12672-29-6

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 12 to 34 min,* p. 8250-2

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8250-1

---

*This "compound" is a mixture of various isomers.

**The PQL of Method 8250 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 3

1) Common name - Polychlorinated biphenyl PCB 1248; Arochlor 1248

2) CA Name - Aroclor 1248

3) CAS No. - 12672-29-6

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8080-23, -25, and -26

---

*Retention time not determined due to multiple peak response.

**Based on regression equation for accuracy.

Method 3 of 3

1) Common name - Polychlorinated biphenyl PCB 1248; Arochlor 1248

2) CA Name - Aroclor 1248

3) CAS No. - 12672-29-6

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 3

1) Common name - Polychlorinated biphenyl PCB 1254; Arochlor 1254

2) CA Name - Aroclor 1254

3) CAS No. - 11097-69-1

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8080-23, -25, and -26

---

*Retention time not determined due to multiple peak response. Chromatogram can be found on p. 8080-12.

**Based on regression equation for accuracy.

Method 2 of 3

1) Common name - Polychlorinated biphenyl PCB 1254; Arochlor 1254

2) CA Name - Aroclor 1254

3) CAS No. - 11097-69-1

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 22 to 34 min,* p. 8250-2

14) Ground Water Practical Quantitation Limit - 360 μg/L,** p. 8250-2 and -5

---

*This "compound" is a mixture of various isomers.

**PQL = Method Detection Limit (p. 8250-2) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common name - PCB 1254; Arochlor 1254 (Polychlorinated biphenyl)

2) CA Name - Aroclor 1254

3) CAS No. - 11097-69-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common name - Polychlorinated biphenyl PCB 1260; Arochlor 1260

2) CA Name - Aroclor 1260

3) CAS No. - 11096-82-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-26

12) Detector - MS, p. 8250-6

13) Retention Time - 23 to 32 min,* p. 8250-2

14) Ground Water Practical Quantitation Limit - 50 μg/L,** p. 8250-26 and -28

---

*This "compound" is a mixture of various isomers.

**Based on regression equation for accuracy.

Method 2 of 3

1) Common name - Polychlorinated biphenyl PCB 1260; Arochlor 1260

2) CA Name - Aroclor 1260

3) CAS No. - 11096-82-5

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 10 $\mu$g/L,** p. 8080-23, -25, and -26

---

*Retention time not determined due to multiple peak response. Chromatogram can be found on p. 8080-13.

**Based on regression equation for accuracy.

Method 3 of 3

1) Common name - PCB 1260; Arochlor 1260
Polychlorinated biphenyl

2) CA Name - Aroclor 1260

3) CAS No. - 11096-82-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-1

---

*Fragment ions listed on p. 8270-2.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 1

1) Common name - Polychlorinated dibenzodioxin (tetra, penta and hexa congeners)

2) CA Name - Polychlorinated dibenzodioxin (tetra, penta and hexa cogeners)

3) CAS No. - None

4) SW-846 Method No. - 8280

5) Method Title - The Analysis of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans

6) Analyte Classification - Base/Neutral (Classification based on analytical judgment, not listed on p. Two-24)

7) Preparation Method - p. 8280-11 to -15

8) Operating Parameters - p. 8280-4

9) Calibration - p. 8280-7 to 8280-10

10) Interferences - p. 8280-3

11) Accuracy and Precision - No data

12) Detector - MS, p. 8280-4

13) Rention time - See p. 8280-21 for representative retention times

14) Ground Water Practical Quantitation Limit - 0.01 µg/L for each cogener isomer, p. 8280-1

Method 1 of 1

1) Common name - Polychlorinated dibenzofurans (tetra, penta and hexa congeners)

2) CA Name - Polychlorinated dibenzofurans (tetra, penta and hexa cogeners)

3) CAS No. - None

4) SW-846 Method No. - 8280

5) Method Title - The Analysis of Polychlorinated Dibenzo-p-Dioxin and Polychlorinated Dibenzofurans

6) Analyte Classification - Base/Neutral (Classification based on analytical judgment, not listed on p. Two-24)

7) Preparation Method - p. 8280-11 to -15

8) Operating Parameters - p. 8280-4

9) Calibration - p. 8280-7 to 8280-10

10) Interferences - p. 8280-3

11) Accuracy and Precision - No data

12) Detector - MS, p. 8280-4

13) Retention Time - See p. 8280-21 for representative retention times

14) Ground Water Practical Quantitation Limit - 0.01 µg/L for each congener isomer, p. 8280-1

Method 1 of 2

1) Common name - Pentachlorobenzene

2) CA Name - Benzene, pentachloro-

3) CAS No. - 608-93-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. E, p. 24; Ref. C, p. 30 and 39

12) Detector - MS, p. 8270-8

13) Retention Time - 15.64 min,* p. 8270-4, (18.92 min,** Ref. F, p. 13; 21.35 min,** Ref. B, p. 55)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

*Estimated retention time.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common name - Pentachlorobenzene
2) CA Name - Benzene, pentachloro-
3) CAS No. - 608-93-5
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions given on p. 8250-4.

Method 1 of 2

1) Common Name - Pentachloroethane

2) CA Name - Ethane, pentachloro-

3) CAS No. - 76-01-7

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Chlorinated Hydrocarbons (not listed on p. Two-23)

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 24.83 min, Ref. B, p. 44; 17.33 min, Ref. F, p. 10

14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8240-1

---

*The PQL of Method 8240 for determining an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Pentachloroethane
2) CA Name - Ethane, pentachloro-
3) CAS No. - 76-01-7
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Chlorinated Hydrocarbons (not listed on p. Two-23)
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 20; Ref. C, p. 34 and 39; Ref. E, p. 24
12) Detector - MS, p. 8270-8
13) Retention Time - 9.72 min,* Ref. F, p. 13
14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 2

1) Common name - Pentachloronitrobenzene

2) CA Name - Benzene, pentachloronitro-

3) CAS No. - 82-68-8

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. C, p. 34 and 39; Ref. E, p. 24

12) Detector - MS, p. 8270-8

13) Retention Time - 19.47 min,* p. 8270-4, (22.22 min,** Ref. F,* p. 13; 21.72,** Ref. B, p. 55)

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

*Estimated retention time.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 2 of 2

1) Common name - Pentachloronitrobenzene
2) CA Name - Benzene, pentachloronitro-
3) CAS No. - 82-68-8
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 (Detector 1) of 3

1) Common Name - Pentachlorophenol
2) CA Name - Phenol, pentachloro-
3) CAS No. - 87-86-5
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - ECD, p. 8040-3
13) Retention Time - 28.8 min, p. 8040-9
14) Ground Water Practical Quantitation Limit - 5.9 µg/L,* p. 8040-9 and -2

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common Name - Pentachlorophenol

2) CA Name - Phenol, pentachloro-

3) CAS No. - 87-86-5

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - FID, p. 8040-3

13) Retention Time - 12.42 min, p. 8040-2

14) Ground Water Practical Quantitation Limit - 74 μg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common Name - Pentachlorophenol

2) CA Name - Phenol, pentachloro-

3) CAS No. - 87-86-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8250-10 to -11

9) Calibration - p. 8250-10 to -14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-26

12) Detector - MS, p. 8250-6

13) Retention Time - 17.5 min, p. 8250-4

14) Ground Water Practical Quantitation Limit - 36 µg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 3 of 3

1) Common Name - Pentachlorophenol

2) CA Name - Phenol, pentachloro-

3) CAS No. - 87-86-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-25

12) Detector - MS, p. 8270-8

13) Retention Time - 19.25 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 50 μg/L, p. 8270-6

Method 1 of 2

1) Common name - Phenacetin
2) CA Name - Acetamide, N-(4-ethoxyphenyl)-H-
3) CAS No. - 62-44-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24; Ref. C, p. 30 & 39
12) Detector - MS, p. 8270-8
13) Retention Time - 18.59 min,* p. 8270-4, (21.08 min.,** Ref. F, p. 13; 24.33 min.,** Ref. B, p. 55)
14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - Phenacetin
2) CA Name - Acetamide, N-(4-ethoxyphenyl)-H-
3) CAS No. - 62-44-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 4

1) Common name - Phenanthrene

2) CA Name - Phenanthrene

3) CAS No. - 85-01-8

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 22.1 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 6.4 μg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 2 of 4

1) Common name - Phenanthrene
2) CA Name - Phenanthrene
3) CAS No. - 85-01-8
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - p. 8270-29
12) Detector - MS, p. 8270-8
13) Retention Time - 19.62 min, p. 8270-4
14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 3 of 4

1) Common name - Phenanthrene

2) CA Name - Phenanthrene

3) CAS No. - 85-01-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-26

12) Detector - MS, p. 8250-6

13) Retention Time - 22.8 min, p. 8250-4

14) Ground Water Practical Quantitation Limit - 54 μg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 4 of 4

1) Common name - Phenanthrene
2) CA Name - Phenanthrene
3) CAS No. - 85-01-8
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 15.9 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8100-9

---

*Based on regression equation for accuracy. A PQL of 200 μg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 1 (Detector 1) of 3

1) Common Name - Phenol
2) CA Name - Phenol
3) CAS No. - 108-95-2
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - FID, p. 8040-3
13) Retention Time - 3.01 min, p. 8040-2
14) Ground Water Practical Quantitation Limit - 1.4 μg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common Name - Phenol

2) CA Name - Phenol

3) CAS No. - 108-95-2

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - ECD, p. 8040-3

13) Retention Time - 1.8 min, p. 8040-9

14) Ground Water Practical Quantitation Limit - 22 μg/L,* 8040-2 and 8040-9

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common Name - Phenol

2) CA Name - Phenol

3) CAS No. - 108-95-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 5.77 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 $\mu$g/L, p. 8270-5

Method 3 of 3

1) Common Name - Phenol
2) CA Name - Phenol
3) CAS No. - 108-95-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8250-10 to -11
9) Calibration - p. 8250-10 to -14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 8.0 min, p. 8250-4
14) Ground Water Practical Quantitation Limit - 15 µg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 1 of 1

1) Common name - p-Phenylenediamine
2) CA Name - 1,4-Benzenediamine
3) CAS No. - 106-50-3
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 23 and 29; Ref. E, p. 24
12) Detector - MS, p. 8270-8
13) Retention Time - 13.62 min, Ref. B, p. 55
14) Ground Water Practical Quantitation Limit - 10 μg/L,* p. 8270-1

---

*The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common name - Phorate

2) CA Name - Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl]ester

3) CAS No. - 298-02-2

4) SW-846 Method No. - 8140

5) Method Title - Organophosphorus Pesticides

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8140-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8140-7

9) Calibration - p. 8140-7, 8000-2 to -4

10) Interferences - p. 8140-1 and -4, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8140-15

12) Detector - FPD, p. 8140-9

13) Retention Time - 1.43 min, p. 8140-2

14) Ground Water Practical Quantitation Limit - 1.5 μg/L,* p. 8140-2 and -3

---

*PQL = MDL (p. 8140-2) x ground water factor (p. 8140-3).

Method 2 of 3

1) Common name - Phorate

2) CA Name - Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl]ester

3) CAS No. - 298-02-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 39 and 44

12) Detector - MS, p. 8270-8

13) Retention Time - 24.10 min,* Ref. B, p. 55

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common name - Phorate*

2) CA Name - Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl]ester

3) CAS No. - 298-02-2

4) SW-846 Method No. - 8150

5) Method Title - Chlorinated Herbicides

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8150-10 to -13

8) Operating Parameters - p. 8150-13

9) Calibration - p. 8150-13, 8000-2 to -4

10) Interferences - p. 8150-1 and -3, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD, p. 8150-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8150 and there is no indication that this compound can be determined by this method.

Method 1 of 3

1) Common name - 2-Picoline

2) CA Name - Pyridine, 2-methyl-

3) CAS No. - 109-06-8

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to 8240-19

10) Interferences - p. 8240-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 23.20 min, Ref. B, p. 44

14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8240-1

---

*The PQL of Method 8240 for determining an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 3

1) Common name - 2-Picoline
2) CA Name - Pyridine, 2-methyl-
3) CAS No. - 109-06-8
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 20
12) Detector - MS, p. 8270-8
13) Retention Time - 3.75 min,* p. 8270-4; (6.57 min,** Ref. F, p. 14)
14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Estimated retention time

**Column conditions equivalent, but not equal to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 3 of 3

1) Common name - 2-Picoline

2) CA Name - Pyridine, 2-methyl-

3) CAS No. - 109-06-8

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 of 2

1) Common name - Pronamide

2) CA Name - Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-

3) CAS No. - 23950-58-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24; Ref. C, p. 30 & 39

12) Detector - MS, p. 8270-8

13) Retention Time - 19.61 min,* p. 8270-4; (22.1 min,** Ref. F, p. 14; 25.48 min,** Ref. B, p. 55)

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

*Estimated retention time

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of methods 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - Pronamide

2) CA Name - Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-

3) CAS No. - 23950-58-5

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 4

1) Common name - Pyrene

2) CA Name - Pyrene

3) CAS No. - 129-00-0

4) SW-846 Method No. - 8310

5) Method Title - Polynuclear Aromatic Hydrocarbons

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/ Neutral, p. Two-24

7) Preparation Method - p. 8310-5, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8310-6

9) Calibration - p. 8310-6

10) Interferences - p. 8310-3, 8000-2 to 8000-4

11) Accuracy and Precision - p. 8310-12

12) Detector - Fluorescence, p. 8310-4

13) Retention Time - 25.4 min, p. 8310-2

14) Ground Water Practical Quantitation Limit - 2.7 µg/L,* p. 8310-2

---

*PQL = MDL (p. 8310-2) x ground water factor (p. 8310-2).

Method 2 of 4

1) Common name - Pyrene

2) CA Name - Pyrene

3) CAS No. - 129-00-0

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-25

12) Detector - MS, p. 8270-8

13) Retention Time - 24.02 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 µg/L, p. 8270-6

Method 3 of 4

1) Common name - Pyrene

2) CA Name - Pyrene

3) CAS No. - 129-00-0

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-26

12) Detector - MS, p. 8250-6

13) Retention Time - 27.3 min, p. 8250-4

14) Ground Water Practical Quantitation Limit - 19 µg/L,* p. 8250-4 and -5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 4 of 4

1) Common name - Pyrene
2) CA Name - Pyrene
3) CAS No. - 129-00-0
4) SW-846 Method No. - 8100
5) Method Title - GC of Polynuclear Aromatic Hydrocarbons
6) Analyte Classification - Polyaromatic Hydrocarbons, p. Two-23; Base/Neutral, p. Two-24
7) Preparation Method - p. 8100-4, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8100-5
9) Calibration - p. 8100-5, 8000-2 to 8000-4
10) Interferences - p. 8100-1, 3500-1 to 3500-2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8100-9
12) Detector - FID, p. 8100-3
13) Retention Time - 20.6 min, p. 8100-2
14) Ground Water Practical Quantitation Limit - 1 µg/L,* p. 8100-6 to -9

*Based on regression equation for accuracy. A PQL of 200 µg/L, based on 10 times the groundwater monitoring method detection limit for semivolatile base/neutral extractable compounds (p. Two-29), is acceptable in lieu of the regression analysis.

Method 1 of 2

1) Common name - Pyridine

2) CA Name - Pyridine

3) CAS No. - 110-86-1

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Base/Neutral (not listed on p. Two-24); Volatiles (not listed on p. Two-28)

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to 8240-19

10) Interferences - p. 8240-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 18.57 min, Ref. B, p. 44

14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8240-1

---

*The PQL of Method 8240 for determining an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common name - Pyridine

2) CA Name - Pyridine

3) CAS No. - 110-86-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (Not listed on p. Two-24); Volatiles (Not listed on p. Two-28)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24

12) Detector - MS, p. 8270-8

13) Retention Time - 5.42 min,* Ref. F, p. 14

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 1

1) Common Name - Safrole

2) CA Name - 1,3-Benzodioxole, 5-(2-propenyl)-

3) CAS No. - 94-59-7

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. F, p. 20; Ref. C, p. 33 & 39; Ref. E, p. 24

12) Detector - MS, p. 8270-8

13) Retention Time - 17.23 min,* Ref. B, p. 55; 15.27 min,* Ref. F, p. 14

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common name - Selenium
2) CA Name - Selenium
3) CAS No. - (Total)
4) SW-846 Method No. - 7740
5) Method Title - Selenium (Atomic Absorption, Furnace Technique)
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 7740-3 to -4
8) Operating Parameters - p. 7740-4
9) Calibration - p. 7000-7 to -8
10) Interferences - p. 7740-1 to -2
11) Accuracy and Precision - p. 7740-5
12) Detector - AAS, p. 7740-2
13) Wavelength - 196.0 nm, p. 7740-4
14) Ground Water Practical Quantitation Limit - 20 µg/L,* p. 7740-1

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 3

1) Common name - Selenium
2) CA Name - Selenium
3) CAS No. - (Total)
4) SW-846 Method No. - 7741
5) Method Title - Selenium (Atomic Absorption, Gaseous Hydride)
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 7741-4
8) Operating Parameters - p. 7741-5
9) Calibration - p. 7741-5, 7000-7 to -8
10) Interferences - p. 7741-1
11) Accuracy and Precision - p. 7741-6
12) Detector - AAS, p. 7741-3
13) Wavelength - 196.0 nm, p. 7741-5
14) Ground Water Practical Quantitation Limit - 20 μg/L,* p. 7741-1

---

*Estimated PQL based on 10 times the method detection limit.

Method 3 of 3

1) Common name - Selenium

2) CA Name - Selenium

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 196.026 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 750 μg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit (p. 6010-2).

Method 1 of 2

1) Common name - Silver

2) CA Name - Silver

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ICP, p. 6010-5

13) Wavelength - 328.068 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 70 μg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit (p. 6010-2).

Method 2 of 2

1) Common name - Silver

2) CA Name - Silver

3) CAS No. - (Total)

4) SW-846 Method No. - 7760

5) Method Title - Silver (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7760-3 and -4

8) Operating Parameters - p. 7760-4

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7760-1

11) Accuracy and Precision - p. 7760-5

12) Detector - AAS, p. 7760-1

13) Wavelength - 328.1 nm, p. 7760-4

14) Ground Water Practical Quantitation Limit - 100 μg/L,* p. 7760-1

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 1

1) Common name - Silvex; 2,4,5-TP
2) CA Name - Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
3) CAS No. - 93-72-1
4) SW-846 Method No. - 8150
5) Method Title - Chlorinated Herbicides
6) Analyte Classification - Chlorinated Herbicides, p. Two-26
7) Preparation Method - p. 8150-10 to -13
8) Operating Parameters - p. 8150-13
9) Calibration - p. 8150-13, 8000-2 to -4
10) Interferences - p. 8150-1 and -3, 8000-1
11) Accuracy and Precision - p. 8150-20
12) Detector - ECD, p. 8150-3
13) Retention Time - 2.7 min, 2.0 min,* p. 8150-2
14) Ground Water Practical Quantitation Limit - 1.7 μg/L,** p. 8150-2

*Retention times from two columns.

**PQL = MDL (p. 8150-2) x ground water factor (p. 8150-2).

Method 1 of 2

1) Common name - Styrene

2) CA Name - Benzene, ethenyl-

3) CAS No. - 100-42-5

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to 8240-19

10) Interferences - p. 8240-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 30.4 min, Ref. F, p. 10;* 30.83 min, Ref. B, p. 44*

14) Ground Water Practical Quantitation Limit - 5 μg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common name - Styrene
2) CA Name - Benzene, ethenyl-
3) CAS No. - 100-42-5
4) SW-846 Method No. - 8020
5) Method Title - Aromatic Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8020-6, 5030-12 to -14
8) Operating Parameters - p. 8020-6
9) Calibration - p. 8020-6, 8000-2 to -4
10) Interferences - p. 8020-1, 5030-2, 8000-1
11) Accuracy and Precision - Ref. D, p. 74
12) Detector - PID, p. 8020-3
13) Retention Time - 10.5, 11.0 min,* p. 8020-8 and -9
14) Ground Water Practical Quantitation Limit - 1 μg/L, Ref. D, p. 74

---

*Retention times read from two chromatograms presenting results from two columns.

Method 1 of 1

1) Common name - Sulfide
2) CA Name - Sulfide
3) CAS No. - 18496-25-8
4) SW-846 Method No. - 9030
5) Method Title - Sulfides
6) Analyte Classification - Anions and Indicator Analyses, p. Two-30
7) Preparation Method - p. 9030-3
8) Operating Parameters - p. 9030-3 to -4
9) Calibration - p. 9030-2
10) Interferences - p. 9030-1
11) Accuracy and Precision - p. 9030-5 (No accuracy data available)
12) Detector - Not applicable, (9030 is a titration method)
13) Retention Time - Not applicable
14) Ground Water Practical Quantitation Limit - 10,000 µg/L,* p. Two-30

---

*Estimated PQL based on 10 times the method detection limit given for sulfide on p. Two-30.

Method 1 of 1

1) Common name - 2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid
2) CA Name - Acetic Acid, (2,3,5-trichlorophenoxy)-
3) CAS No. - 93-76-5
4) SW-846 Method No. - 8150
5) Method Title - Chlorinated Herbicides
6) Analyte Classification - Chlorinated Herbicides, p. Two-26
7) Preparation Method - p. 8150-10 to -13
8) Operating Parameters - p. 8150-13
9) Calibration - p. 8150-13, 8000-2 to -4
10) Interferences - p. 8150-1 and -3, 8000-1
11) Accuracy and Precision - p. 8150-20
12) Detector - ECD, p. 8150-3
13) Retention Time - 3.4 min, 2.4 min,* p. 8150-2
14) Ground Water Practical Quantitation Limit - 2.0 µg/L,** p. 8150-2

---

*Retention times from two columns.

**PQL = MDL (p. 8150-2) x ground water factor (p. 8150-2).

Method 1 of 1

1) Common name - 2,3,7,8-TCDD

2) CA Name - 2,3,7,8-Tetrachlorodibenzo-p-dioxin

3) CAS No. - 1746-01-6

4) SW-846 Method No. - 8280

5) Method Title - The Analysis of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans

6) Analyte Classification - Base/Neutral (classification based on analytical judgment, not listed on p. Two-24)

7) Preparation Method - p. 8280-11 to -15

8) Operating Parameters - p. 8280-4

9) Calibration - p. 8280-7 to 8280-10

10) Interferences - p. 8280-3

11) Accuracy and Precision - Not available in Refs. A-F

12) Detector - MS, p. 8280-4

13) Retention Time - 25.2, 17.8, 26.7 min,* p. 8280-21

14) Ground Water Practical Quantitation Limit - 4.4 ppt,** p. 8280-31

---

*Data from three GC columns.

**Estimated PQL based on 10 times the method detection limit.

Method 1 of 2

1) Common name - 1,2,4,5-Tetrachlorobenzene
2) CA Name - Benzene, 1,2,4,5-tetrachloro-
3) CAS No. - 95-94-3
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral, p. Two-24
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F, p. 20; Ref. E, p. 24; Ref. C, p. 31 & 39
12) Detector - MS, p. 8270-8
13) Retention Time - 13.62* min, p. 8270-4 (16.03 min,** Ref. F, p. 14; 17.97 min,** Ref. B, p. 55)
14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Estimated retention time

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water sample.

Method 2 of 2

1) Common name - 1,2,4,5-Tetrachlorobenzene

2) CA Name - Benzene, 1,2,4,5-tetrachloro-

3) CAS No. - 95-94-3

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common name - 1,1,1,2-Tetrachloroethane
2) CA Name - Ethane, 1,1,1,2-tetrachloro-
3) CAS No. - 630-20-6
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27
7) Preparation Method - p. 8240-19 to 8240-22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 8240-19
10) Interferences - p. 8240-6
11) Accuracy and Precision - Ref. F, p. 17
12) Detector - MS, p. 8240-10
13) Retention Time - 20.33 min,* Ref. B, p. 44; 14.43 min,* Ref. F, p. 10
14) Ground Water Practical Quantitation Limit - 5 µg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for determining an individual compound is approximately 5 µg/L for ground water samples.

Method 2 of 2

1) Common name - 1,1,1,2-Tetrachloroethane
2) CA Name - Ethane, 1,1,1,2-tetrachloro-
3) CAS No. - 630-20-6
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27
7) Preparation Method - p. 8010-7, 5030-12 to -14
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - Ref. D, p. 62
12) Detector - HECD, p. 8010-4
13) Retention Time - 19.3 min,* p. 8010-9
14) Ground Water Practical Quantitation Limit - 5 µg/L, Ref. D, p. 62

---

*Retention time read from chromatogram.

Method 1 of 2

1) Common Name - 1,1,2,2-Tetrachloroethane

2) CA Name - Ethane, 1,1,2,2-tetrachloro-

3) CAS No. - 79-34-5

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 21.6 min, p. 8010-2

14) Ground Water Practical Quantitation Limit - 0.3 µg/L - pp. 8010-2 and -3

---

*PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - 1,1,2,2-Tetrachloroethane
2) CA Name - Ethane, 1,1,2,2-tetrachloro-
3) CAS No. - 79-34-5
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 22.1 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common Name - Tetrachloroethylene; Perchloroethylene

2) CA Name - Ethene, tetrachloro-

3) CAS No. - 127-18-4

4) SW-846 Method No. 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 21.7, 15.0 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 0.3 μg/L,** pp. 8010-2 and -3

*Retention times from two columns

**PQL = MDL (p. 8010-2) x ground water factor (8010-3).

Method 2 of 2

1) Common Name - Tetrachloroethylene; Perchloroethylene; (Tetrachloroethene)
2) CA Name - Ethene, tetrachloro-
3) CAS No. - 127-18-4
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Halogenated Volatile Organics, p. Two-27
7) Preparation - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 22.2 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 3

1) Common name - 2,3,4,6-Tetrachlorophenol
2) CA Name - Phenol, 2,3,4,6-tetrachloro-
3) CAS No. - 58-90-2
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Techinque
6) Analyte Classification - Phenols and Organic Acid, p. Two-22
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. F p. 20; Ref. C, p. 30 and 39; Ref. E, p. 24
12) Detector - MS, p. 8270-8
13) Retention Time - 16.09 min,* p. 8270-4 (19.28 min,** Ref. F, p. 14; 21.88 min,** Ref. B, p. 55)
14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*Estimated retention time.

**Column conditions are equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 3

1) Common name - 2,3,4,6-Tetrachlorophenol

2) CA Name - Phenol, 2,3,4,6-tetrachloro-

3) CAS No. - 58-90-2

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acid, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ECD or FID, p. 8040-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 3 of 3

1) Common name - 2,3,4,6-Tetrachlorophenol
2) CA Name - Phenol, 2,3,4,6-tetrachloro-
3) CAS No. - 58-90-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Techinque
6) Analyte Classification - Phenols and Organic Acid, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 6, 3520-4 to 5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - No data, Ref. A-F checked
12) Detector - MS, p. 8250-6
13) Retention Time - No data,* Ref. A-F checked
14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*Fragment ions listed on p. 8250-4.

Method 1 of 2

1) Common name - Tetraethyldithiopyrophosphate; Sulfotepp*

2) CA Name - Thiodiphosphoric acid ([HO)2P(S)]2O), tetraethyl ester

3) CAS No. - 3689-24-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 39 and 48

12) Detector - MS, p. 8270-8

13) Retention Time - 22.5 min,** Ref. C, p. 69

14) Ground Water Practical Quantitation Limit - 10 μg/L,*** p. 8270-1

---

*(Ref. B, p. 50) This compound was expected to be suitable for GC/MS analysis but was not detected in this study.

**Column conditions equivalent, but not identical to those in SW-846.

***The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 2 of 2

1) Common name - Tetraethyldithiopyrophosphate; Sulfotepp*

2) CA Name - Thiodiphosphoric acid ([HO)2P(S)]2O), tetraethyl ester

3) CAS No. - 3689-24-5

4) SW-846 Method No. - 8140

5) Method Title - Organophosphorus pesticides

6) Analyte Classification - Organophosphorus Pesticides, p. Two-25

7) Preparation Method - p. 8140-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8140-7

9) Calibration - p. 8140-7, 8000-2 to -4

10) Interferences - p. 8140-1 and -4, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - p. 8140-4

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

---

*This compound does not appear in SW-846 Method 8140 and there is no indication in Ref. A-F that this compound can be determined by this method.

Method 1 of 1

1) Common name - Tetraethyl pyrophosphate

2) CA Name - Diphosphoric acid, tetraethylester

3) CAS No. - 107-49-3

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (Based on analytical judgment; not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to -5, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 31

12) Detector - MS, p. 8270-8

13) Retention Time - 11.07 min,* Ref. B, p. 55

14) Ground Water Practical Quantitation Limit - 10 μg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 μg/L for ground water samples.

Method 1 of 3

1) Common name - Thallium
2) CA Name - Thallium
3) CAS No. - (Total)
4) SW-846 Method No. - 7841
5) Method Title - Thallium (Atomic Absorption, Furnace Technique)
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 7841-2, 3005-1 to -4, 3010-1 to -4
8) Operating Parameters - p. 7841-1
9) Calibration - p. 7000-7 to -8
10) Interferences - p. 7841-1, 7000-4 to -6
11) Accuracy and Precision - No data available, p. 7841-2
12) Detector - AAS, p. 7841-1, 7000-6
13) Wavelength - 276.8 nm, p. 7841-1
14) Ground Water Practical Quantitation Limit - 10 µg/L,* p. 7841-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 3

1) Common name - Thallium

2) CA Name - Thallium

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - ICP, p. 6010-5

13) Wavelength - 190.864 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 400 μg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit (p. 6010-2).

Method 3 of 3

1) Common name - Thallium
2) CA Name - Thallium
3) CAS No. - (Total)
4) SW-846 Method No. - 7840
5) Method Title - Thallium (Atomic Absorption, Direct Aspiration)
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 7840-2, 3005-1 to -4, 3010-1 to -4
8) Operating Parameters - p. 7840-1
9) Calibration - p. 7000-7 to -8
10) Interferences - p. 7840-1, 7000-3 to -4
11) Accuracy and Precision - p. 7840-2
12) Detector - AAS, p. 7840-1, 7000-6
13) Wavelength - 276.8 nm, p. 7840-1
14) Ground Water Practical Quantitation Limit - 1,000 µg/L,* p. 7840-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 1

1) Common name - Thioacetamide*

2) CA Name - Ethanethioamide

3) CAS No. - 62-55-5

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral (Based on analytical judgement, not listed on p. Two-24)

7) Preparation Method - p. 8270-11, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 40 and 43

12) Detector - MS, p. 8270-8

13) Retention Time - Ref. C, p. 40*

14) Ground Water Practical Quantitation Limit - No data

---

*Ref. C, p. 40 lists a relative retention time of 0.41 (based on the retention time of d10-phenanthrene). According to Reference B, Table 15, p. 59, the compound as detected by GC/MS, Method 8270, but with such poor chromatography that other GC conditions would be required for successful analysis. The compound's polarity may have affected its chromatographability. In spite of these problems, in Reference C, a recovery study was undertaken (Table 9, p. 29) yielding recoveries of 10% with 5% RSD.

Method 1 of 1

1) Common name - Tin

2) CA Name - Tin

3) CAS No. - (Total)

4) SW-846 Method No. - 7870

5) Method Title - Tin (Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7870-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7870-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7870-1, 7000-3 to -4

11) Accuracy and Precision - p. 7870-2

12) Detector - AAS, p. 7870-1, 7000-6

13) Wavelength - 286.3 nm, p. 7870-1

14) Ground Water Practical Quantitation Limit - 8,000 μg/L,* p. 7870-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 2

1) Common Name - Toluene

2) CA Name - Benzene, methyl-

3) CAS No. - 108-88-3

4) SW-846 Method No. - 8020

5) Method Title - Aromatic Volatile Organics

6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28

7) Preparation Method - p. 8020-6, 5030-12 to 14

8) Operating Parameters - p. 8020-6

9) Calibration - p. 8020-6, 8000-2 to -4

10) Interferences - p. 8020-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8020-13

12) Detector - PID, p. 8020-3

13) Retention Time - 5.75, 4.25 min,* p. 8020-2

14) Ground Water Practical Quantitation Limit - 2.0 μg/L,** p. 8020-2

*Retention times from two columns.

**PQL = MDL (p. 8020-2) x ground water factor (p. 8020-2).

Method 2 of 2

1) Common Name - Toluene
2) CA Name - Benzene, methyl-
3) CAS No. - 108-88-3
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to -22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to -19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-36
12) Detector - MS, p. 8240-10
13) Retention Time - 23.5 min, p. 8240-2
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-5

Method 1 of 1

1) Common Name - o-Toluidine
2) CA Name - Benzenamine, 2-methyl-
3) CAS No. - 95-53-4
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral (not listed on p. Two-24)
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 29 and 40
12) Detector - MS, p. 8270-8
13) Retention Time - 12.87 min,** Ref. B, p. 55; 11.52 min, Ref. F, p. 14
14) Ground Water Practical Quantitation Limit - 10 µg/L,* p. 8270-1

---

*The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

**Column conditions equivalent, but not identical to those in SW-846.

Method 1 of 3

1) Common name - Toxaphene

2) CA Name - Toxaphene

3) CAS No. - 8001-35-2

4) SW-846 Method No. - 8080

5) Method Title - Organochlorine Pesticides and PCBs

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8080-6, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8080-7

9) Calibration - p. 8080-7, 8000-2 to -4

10) Interferences - p. 8080-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8080-26

12) Detector - HECD, p. 8080-4

13) Retention Time - p. 8080-2*

14) Ground Water Practical Quantitation Limit - 2.4 µg/L,** p. 8080-2 and -3

---

*Retention time could not be determined due to multiple peak response.

**PQL = MDL (p. 8080-2) x ground water factor (p. 8080-3).

Method 2 of 3

1) Common name - Toxaphene

2) CA Name - Toxaphene

3) CAS No. - 8001-35-2

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - 25 to 34 min,* p. 8250-4

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8250-1

---

*This "compound" is a mixture of various isomers.

**The PQL of Method 8250 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 3 of 3

1) Common name - Toxaphene*

2) CA Name - Toxaphene

3) CAS No. - 8001-35-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24; Organochlorine Pesticides and PCBs, p. Two-26

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Fragment ions listed on p. 8270-4

**The PQL of Method 8270 for determining an individual compound is approximately 10 ug/L for ground water samples.

Method 1 of 2

1) Common name - 1,2,4-Trichlorobenzene

2) CA Name - Benzene, 1,2,4-trichloro-

3) CAS No. - 120-82-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Orgnaics: Capillary Column Technique

6) Analyte Classification -Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8270-8

13) Retention Time - 9.67 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 $\mu g/L$, p. 8270-5

Method 2 of 2

1) Common name - 1,2,4-Trichlorobenzene

2) CA Name - Benzene, 1,2,4-trichloro-

3) CAS No. - 120-82-1

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - p. 8250-26

12) Detector - MS, p. 8250-6

13) Retention Time - 11.6 min, p. 8250-4

14) Ground Water Practical Quantitation Limit - 19 μg/L, p. 8250-4

Method 1 of 1

1) Common name - 1,1,1-Trichloroethane; Methylchloroform
2) CA Name - Ethane, 1,1,1-trichloro-
3) CAS No. - 71-55-6
4) SW-846 Method No. - 8240
5) Method Title - GC/MS for Volatile Organics
6) Analyte Classification - Volatiles, p. Two-28
7) Preparation Method - p. 8240-19 to 8240-22
8) Operating Parameters - p. 8240-16
9) Calibration - p. 8240-16 to 8240-19
10) Interferences - p. 8240-6
11) Accuracy and Precision - p. 8240-34
12) Detector - MS, p. 8240-10
13) Retention Time - 13.4 min, p. 8240-3
14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common Name - 1,1,2-Trichloroethane

2) CA Name - Ethane, 1,1,2-Trichloro-

3) CAS No. - 79-00-5

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 16.5, 18.1 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 0.2 µg/L pp. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - 1,1,2-Trichloroethane

2) CA Name - Ethane, 1,1,2-trichloro-

3) CAS No. - 79-00-5

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 17.2 min, p. 8240-3

14) Ground Water Practical Quantitation Limit - 5 µg/L, p. 8240-4

Method 1 of 2

1) Common Name - Trichloroethylene

2) CA Name - Ethene, trichloro-

3) CAS No. - 79-01-6

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and Precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 15.8, 13.1 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 1.2 μg/L,** p. 8010-3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Trichloroethylene; (Trichloroethene)

2) CA Name - Ethene, trichloro-

3) CAS No. - 79-01-6

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 16.5 min, p. 8240-3

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-4

Method 1 of 2

1) Common Name - Trichlorofluoromethane

2) CA Name - Methane, trichlorofluoro-

3) CAS No. - 75-69-4

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27, Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 8.3 min, p. 8240-3

14) Ground Water Practical Quantitation Limit - 5 μg/L,* p. 8240-1

---

*The PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common Name - Trichlorofluoromethane

2) CA Name - Methane, trichlorofluoro-

3) CAS No. - 75-69-4

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 7.18 min, p. 8010-2

14) Ground Water Practical Quantitation Limit - 10 μg/L, Ref. D, p. 62

Method 1 of 3

1) Common Name - 2,4,5-Trichlorophenol
2) CA Name - Phenol, 2,4,5-trichloro-
3) CAS No. - 95-95-4
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8270-11, 3510-4 to 6, 3520-4 to -5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 30 and 40
12) Detector - MS, p. 8270-8
13) Retention Time - 13.00 min, p. 8270-4
14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 2 of 3

1) Common Name - 2,4,5-Trichlorophenol

2) CA Name - Phenol, 2,4,5-trichloro-

3) CAS No. - 95-95-4

4) SW-846 Method No. - 8250

5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8250-10 to 8250-11

9) Calibration - p. 8250-10 to 8250-14

10) Interferences - p. 8250-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8250-6

13) Retention Time - No data,* Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data

---

*Fragment ions given on p. 8250-4.

Method 3 of 3

1) Common Name - 2,4,5-Trichlorophenol

2) CA Name - Phenol, 2,4,5-trichloro-

3) CAS No. - 95-95-4

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to 2, 3600-2, 8000-1

11) Accuracy and Precision - No data available, Ref. A-F checked

12) Detector - FID or ECD, p. 8040-3

13) Retention Time - No data, Ref. A-F checked

14) Ground Water Practical Quantitation Limit - No data, Ref. A-F checked

Method 1 (Detector 1) of 3

1) Common Name - 2,4,6-Trichlorophenol
2) CA Name - Phenol, 2,4,6-trichloro-
3) CAS No. - 88-06-2
4) SW-846 Method No. - 8040
5) Method Title - Phenols
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5
8) Operating Parameters - p. 8040-6
9) Calibration - p. 8040-6, 8000-2 to -4
10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1
11) Accuracy and Precision - p. 8040-15
12) Detector - ECD, p. 8040-3
13) Retention Time - 7.0 min, p. 8040-9
14) Ground Water Practical Quantitation Limit - 5.8 µg/L,* p. 8040-2 and -9

---

*PQL = MDL (p. 8040-9) x ground water factor (p. 8040-2).

Method 1 (Detector 2) of 3

1) Common Name - 2,4,6-Trichlorophenol

2) CA Name - Phenol, 2,4,6-trichloro-

3) CAS No. - 88-06-2

4) SW-846 Method No. - 8040

5) Method Title - Phenols

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8040-5, 3510-4 to -6, 3520-4 to -5

8) Operating Parameters - p. 8040-6

9) Calibration - p. 8040-6, 8000-2 to -4

10) Interferences - p. 8040-1, 3500-1 to -2, 3600-2, 8000-1

11) Accuracy and Precision - p. 8040-15

12) Detector - FID, p. 8040-3

13) Retention Time - 6.05 min, p. 8040-2

14) Ground Water Practical Quantitation Limit - 6.4 μg/L,* p. 8040-2

---

*PQL = MDL (p. 8040-2) x ground water factor (p. 8040-2).

Method 2 of 3

1) Common Name - 2,4,6-Trichlorophenol

2) CA Name - Phenol, 2,4,6-trichloro-

3) CAS No. - 88-06-2

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Phenols and Organic Acids, p. Two-22

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - p. 8270-29

12) Detector - MS, p. 8270-8

13) Retention Time - 12.85 min, p. 8270-4

14) Ground Water Practical Quantitation Limit - 10 μg/L, p. 8270-5

Method 3 of 3

1) Common Name - 2,4,6-Trichlorophenol
2) CA Name - Phenol, 2,4,6-trichloro-
3) CAS No. - 88-06-2
4) SW-846 Method No. - 8250
5) Method Title - GC/MS for Semivolatile Organics: Packed Column Technique
6) Analyte Classification - Phenols and Organic Acids, p. Two-22
7) Preparation Method - p. 8250-10, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8250-10 to 8250-11
9) Calibration - p. 8250-10 to 8250-14
10) Interferences - p. 8250-6
11) Accuracy and Precision - p. 8250-26
12) Detector - MS, p. 8250-6
13) Retention Time - 11.8 min, p. 8250-4
14) Ground Water Practical Quantitation Limit - 27 µg/L,* p. 8250-4 & 8250-5

---

*PQL = MDL (p. 8250-4) x ground water factor (p. 8250-5).

Method 1 of 2

1) Common Name - 1,2,3-Trichloropropane

2) CA Name - Propane, 1,2,3-trichloro-

3) CAS No. - 96-18-4

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - Ref. E, p. 19; Ref. F, p. 17

12) Detector - MS, p. 8240-10

13) Retention Time - 22.20 min,* Ref. B, p. 45; (22.42 min,* Ref. F, p. 10)

14) Ground Water Practical Quantitation Limit - 5 μg/L,** p. 8240-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

Method 2 of 2

1) Common Name - 1,2,3-Trichloropropane
2) CA Name - Propane, 1,2,3-trichloro-
3) CAS No. - 96-18-4
4) SW-846 Method No. - 8010
5) Method Title - Halogenated Volatile Organics
6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28
7) Preparation Method - p. 8010-7, 5030-12 to -14 .
8) Operating Parameters - p. 8010-7
9) Calibration - p. 8010-7, 8000-2 to -4
10) Interferences - p. 8010-1, 5030-2, 8000-1
11) Accuracy and Precision - Ref. D, p. 62
12) Detector - HECD, p. 8010-4
13) Retention Time - 21 min, p. 8010-9
14) Ground Water Practical Quantitation Limit - 10 μg/L, Ref. D, p. 62

Method 1 of 1

1) Common name - O,O,O-Triethyl Phosphorothioate*

2) CA Name - Phosphorothioic acid, O,O,O-triethyl ester

3) CAS No. - 126-68-1

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Organophosphorus Pesticides (not listed on p. Two-25)

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to 17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 40 and 48

12) Detector - MS, p. 8270-8

13) Retention Time - 13.3 min,** Ref. C, p. 40 and p. 65

14) Ground Water Practical Quantitation Limit - 10 µg/L,*** p. 8270-1

*(Ref. B, p. 50) This compound was expected to be suitable for GC/MS analysis but not detected in this study.

**Ref. C, p. 40 gives a relative retention time of 0.56 based on the retention time of d10-phenanthrene. The retention time for d10-phenanthrene is read from the graph (Ref. C, p. 65).

***The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 1

1) Common name - sym-Trinitrobenzene

2) CA Name - Benzene, 1,3,5-trinitro

3) CAS No. - 99-35-4

4) SW-846 Method No. - 8270

5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique

6) Analyte Classification - Base/Neutral, p. Two-24

7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5

8) Operating Parameters - p. 8270-12

9) Calibration - p. 8270-12 to -17

10) Interferences - p. 8270-8

11) Accuracy and Precision - Ref. C, p. 40 and 48; Ref. E, p. 24

12) Detector - MS, p. 8270-8

13) Retention Time - 23.68 min,* Ref. B, p. 56

14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

Method 1 of 1

1) Common name - Tris(2,3-dibromopropyl)phosphate
2) CA Name - 1-Propananol, 2,3-dibromo-, phosphate(3:1)
3) CAS No. - 126-72-7
4) SW-846 Method No. - 8270
5) Method Title - GC/MS for Semivolatile Organics: Capillary Column Technique
6) Analyte Classification - Base/Neutral (not listed on p. Two-24)
7) Preparation Method - p. 8270-11, 3510-4 to 3510-6, 3520-4 to 3520-5
8) Operating Parameters - p. 8270-12
9) Calibration - p. 8270-12 to -17
10) Interferences - p. 8270-8
11) Accuracy and Precision - Ref. C, p. 40 and 46
12) Detector - MS, p. 8270-8
13) Retention Time - 35.68 min,* Ref. B, p. 56
14) Ground Water Practical Quantitation Limit - 10 µg/L,** p. 8270-1

---

*Column conditions equivalent, but not identical to those in SW-846.

**The PQL of Method 8270 for determining an individual compound is approximately 10 µg/L for ground water samples.

NOTE: Ref. B, pp. 50, 56 found response factor by MS too low for practical use.
Ref. E, p. 17 found zero percent recovery by Method 8270.
Ref. F, p. 22 reported not measurable by Method 625 (8270 equivalent).

Method 1 of 3

1) Common name - Vanadium

2) CA Name - Vanadium

3) CAS No. - (Total)

4) SW-846 Method No. - 7911

5) Method Title - Vanadium (Atomic Absorption, Furnace Technique)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7911-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7911-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7911-1, 7000-4 to -6

11) Accuracy and Precision - p. 7911-2

12) Detector - AAS, p. 7911-1, 7000-6

13) Wavelength - 318.4 nm, p. 7911-1

14) Ground Water Practical Quantitation Limit - 40 µg/L,* p. 7911-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 3

1) Common name - Vanadium
2) CA Name - Vanadium
3) CAS No. - (Total)
4) SW-846 Method No. - 6010
5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4
8) Operating Parameters - p. 6010-5
9) Calibration - p. 6010-11 to -15
10) Interferences - p. 6010-3 to -5
11) Accuracy and Precision - p. 6010-16
12) Detector - ICP, p. 6010-5
13) Wavelength - 292.402 nm, p. 6010-2
14) Ground Water Practical Quantitation Limit - 80 μg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 3 of 3

1) Common name - Vanadium

2) CA Name - Vanadium

3) CAS No. - (Total)

4) SW-846 Method No. - 7910

5) Method Title - (Vanadium Atomic Absorption, Direct Aspiration)

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 7910-2, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 7910-1

9) Calibration - p. 7000-7 to -8

10) Interferences - p. 7910-1, 7000-3 to -4

11) Accuracy and Precision - p. 7910-2

12) Detector - AAS, p. 7910-1, 7000-6

13) Wavelength - 318.4 nm, p. 7910-1

14) Ground Water Practical Quantitation Limit - 2,000 µg/L,* p. 7910-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 1 of 1

1) Common name - Vinyl acetate

2) CA Name - Acetic acid, ethenyl ester

3) CAS No. - 108-05-4

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to 8240-22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to 8240-19

10) Interferences - p. 8240-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 14.03 min,* Ref. F, p. 10

14) Ground Water Practical Quantitation Limit - 5 μg/L,** p. 8240-1

---

*Column conditions are equivalent, but not identical to those in SW-846.

**The PQL of Method 8240 for an individual compound is approximately 5 μg/L for ground water samples.

1) Common Name - Vinyl chloride

2) CA Name - Ethane, chloro-

3) CAS No. - 75-01-4

4) SW-846 Method No. - 8010

5) Method Title - Halogenated Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8010-7, 5030-12 to -14

8) Operating Parameters - p. 8010-7

9) Calibration - p. 8010-7, 8000-2 to -4

10) Interferences - p. 8010-1, 5030-2, 8000-1

11) Accuracy and precision - p. 8010-12

12) Detector - HECD, p. 8010-4

13) Retention Time - 2.67, 5.28 min,* p. 8010-2

14) Ground Water Practical Quantitation Limit - 1.8 μg/L,** p. 8010-2 and -3

---

*Retention times from two columns.

**PQL = MDL (p. 8010-2) x ground water factor (p. 8010-3).

Method 2 of 2

1) Common Name - Vinyl chloride

2) CA Name - Ethane, chloro-

3) CAS No. - 75-01-4

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Halogenated Volatiles, p. Two-27; Volatiles, p. Two-28

7) Preparation - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and precision - p. 8240-36

12) Detector - MS, p. 8240-10

13) Retention Time - 3.8 min, p. 8240-3

14) Ground Water Practical Detection Limit - 10 µg/L, p. 8240-4

Method 1 of 2

1) Common Name - Xylene (total)

2) CA Name - Benzene, dimethyl-

3) CAS No. - 1330-20-7

4) SW-846 Method No. - 8240

5) Method Title - GC/MS for Volatile Organics

6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28

7) Preparation Method - p. 8240-19 to -22

8) Operating Parameters - p. 8240-16

9) Calibration - p. 8240-16 to -19

10) Interferences - p. 8240-6

11) Accuracy and Precision - No data, Ref. A-F checked

12) Detector - MS, p. 8240-10

13) Retention Time - 30.60 - 31.32 min, Ref. F, p. 10*

14) Ground Water Practical Quantitation Limit - 5 μg/L, p. 8240-5

---

*Reference F, p. 10 provides the following retention times:

| | |
|---|---|
| m - Xylene | 30.60 min |
| o & p - Xylene | 31.32 min |

For total Xylene the concentrations of the three isomers should be combined.

Column conditions are equivalent, but not identical to thos in SW-846.

Method 2 of 2

1) Common Name - Xylene (total)

2) CA Name - Benzene, dimethyl

3) CAS No. - 1330-20-7

4) SW-846 Method No. - 8020

5) Method Title - Aromatic Volatile Organics

6) Analyte Classification - Aromatic Volatiles, p. Two-28; Volatiles, p. Two-28

7) Preparation Method - p. 8020-6, 5030-12 to -14

8) Operating Parameters - p. 8020-6

9) Calibration - p. 8020-6, 8000-2 to -4

10) Interferences - p. 8020-1, 5030-2, 8000-1

11) Accuracy and Precision - Ref. D, p. 74*

12) Detector - PID, p. 8020-3

13) Retention Time - 8.5-9.5 min,** p. 8020-8

14) Ground Water Practical Quantitation Limit - 3 μg/L,* (Based on summing all xylenes detected) Ref. D, p. 74

---

*Accuracy and precision is given for the individual isomers.

**Retention times - p-xylene 8.5 min; m-xylene 9.0 min; o-xylene 9.5 min. For total xylene the concentrations of the three isomers should be combined.

Method 1 of 2

1) Common name - Zinc

2) CA Name - Zinc

3) CAS No. - (Total)

4) SW-846 Method No. - 6010

5) Method Title - Inductively Coupled Plasma Atomic Emission Spectroscopy

6) Analyte Classification - Metals, p. Two-29

7) Preparation Method - p. 6010-10, 3005-1 to -4, 3010-1 to -4

8) Operating Parameters - p. 6010-5

9) Calibration - p. 6010-11 to -15

10) Interferences - p. 6010-3 to -5

11) Accuracy and Precision - p. 6010-16

12) Detector - ICP, p. 6010-5

13) Wavelength - 213.856 nm, p. 6010-2

14) Ground Water Practical Quantitation Limit - 20 μg/L,* p. 6010-2

---

*Estimated PQL based on 10 times the method detection limit.

Method 2 of 2

1) Common name - Zinc
2) CA Name - Zinc
3) CAS No. - (Total)
4) SW-846 Method No. - 7950
5) Method Title - Zinc (Atomic Absorption, Direct Aspiration)
6) Analyte Classification - Metals, p. Two-29
7) Preparation Method - p. 7950-2, 3005-1 to -4, 3010-1 to -4
8) Operating Parameters - p. 7950-1
9) Calibration - p. 7000-7 to -8
10) Interferences - p. 7950-1, 7000-3 to -4
11) Accuracy and Precision - p. 7950-2
12) Detector - AAS, p. 7950-1, 7000-6
13) Wavelength - 213.9 nm, p. 7950-1
14) Ground Water Practical Quantitation Limit - 50 µg/L,* p. 7950-2

*Estimated PQL based on 10 times the method detection limit.

# Summary of Appropriate Analytical Methods

## - Part II

Battle Input

Supplementary Info

on

12 Compounds

Office of Solid Waste

Environmental Protection Agency

July 1987

Kornfeld, R.A. Recent Research Results for Selected Analytes with Methods 8010 and 8015. Memorandum to Jerry Garman, OSW/EPA. Battelle Columbus Division, EPA Contract No. 68-03-1760, Work Assignment 2-15. May 29, 1987.

Battelle
Columbus Division
505 King Avenue
Columbus, Ohio 43201-2693
Telephone (614) 424-6424
Telex 24-5454

May 29, 1987

Mr. Jerry Garman
Office of Solid Waste
U.S. Environmental Protection Agency
401 M. Street, S.W.
Washington, D.C. 20460

Dear Mr. Garman:

Detection Limits for Room
Temperature PTD with 8010 and 8015

At your request, I am sending to you estimated method detection limits (EMDL) for twelve volatile organic compounds being considered for inclusion on Appendix IX. Results for nine of the twelve compounds were obtained using methodology contained in SW-846 Methods 5030/8015, nonhalogenated volatile organics analysis by room temperature purge-trap-desorb (PTD) and pack column gas chromatography with flame ionization detection (GC-FID). The GC column was an 8 ft x 0.1 in I.D. stainless steel column packed with 1% SP-1000 on 60/80 mesh Carbopack B (Supelco). The chromatographic conditions are as follows:

| | |
|---|---|
| Injector temperature | 220 C |
| Carrier gas | Helium, 40 mL/min |
| Oven Program | 45 C for 3 min, 8 C/min to 200 C, hold at 200 C for 15 min |
| Detector temperature | 250 C |

The three remaining compounds; allyl chloride, 1,2-dibromo-3-chloropropane, and 1,2-dibromoethane; were analyzed using methodology contained in SW-846 Methods 5030/8010, halogenated volatile organics analysis by room temperature PTD and GC separation with Hall Electrolytic Conductivity (Hall) detection. The same GC column was used, and the GC conditions were modified to yield the following:

| | |
|---|---|
| Injector temperature | 200 C |
| Carrier gas | Helium, 40 mL/min |
| Oven Program | 45 C for 3 min, 8 C/min to 200 C, hold at 200 C for 15 min |
| Detector temperature | 220 C |

The results presented in this communication were obtained from experiments carried out under Contract Number 68-03-1760, Work Assignment 2-15 and Contract Number 68-03-3224, Work Assignment 2-09.

Information used to calculate the room temperature PTD EMDL is presented in Table 1. Retention times were recorded from the beginning of the desorb cycle to the peak maximum. The EMDL is calculated from the results of two experiments, the instrument detection limit from direct liquid injection (DLI) and from purging efficiency experiments. Using the Battelle generated Single Laboratory Method Validation Protocol, the instrument detection limit is defined as the concentration corresponding to a signal-to-noise ratio of 5:1. Purging experiments were conducted adding the same volume of standard solution that was used in the DLI experiments, 3 uL, to 5 mL of water in a purge tube. Purging efficiencies were calculated as the ratio of peak areas in purging vs. DLI experiments.

EMDL's were calculated using the following formula:

$$\frac{\text{DLI Instrument Detection Limit } (\mu\text{g/mL}) \times 3 \text{ uL}}{\text{Purging Efficiency} \times \text{Purged Water Volume } (5 \text{ mL})}$$

The calculations are conservative estimates of the method detection limit using RT PTD methodology. Lower limits may be achievable under conditions that achieve a signal-to-noise of 5 at lower concentrations.

Sincerely,

Richard A. Kornfeld

Richard A. Kornfeld, Ph.D.
Projects Manager
Analytical Chemistry Section

RAK:las

Enclosure

cc: Mr. James Longbottom, US EPA/EMSL, Cincinnati
Mr. Thomas Freund, US EPA/OSW, Washington
Mr. Edward Lawless, Midwest Research Institute, Kansas City

TABLE 1. DETECTION LIMITS FOR SELECTED COMPOUNDS USING ROOM TEMPERATURE PTD WITH METHOD 8010 or 8015

| Compound | CAS No. | Method | Retention Time, min | DLI Instrument Detection Limit, μg/mL[a] | Purging Efficiency[b] | Estimated PTD Method Detection Limit, μg/L[c] |
|---|---|---|---|---|---|---|
| Acetonitrile | 75-05-8 | 8015 | 3.0 | 1.0 | 0.07[d] | 8.6 |
| Allyl chloride | 107-05-1 | 8010 | 10.6 | 0.40 | 0.88 | 0.27 |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | 8010 | 28.8 | 2.0 | 0.14 | 8.6 |
| 1,2-Dibromoethane | 106-93-4 | 8010 | 19.6 | 1.0 | 0.71 | 0.85 |
| 1,4-Dioxane | 123-91-1 | 8015 | 14.5 | 0.25 | 0.01 | 15. |
| Ethyl methacrylate | 97-63-2 | 8015 | 23.2 | 0.90 | 0.55 | 0.98 |
| Isobutanol | 78-83-1 | 8015 | 13.7 | 0.14 | 0.02 | 4.2 |
| Methacrylonitrile | 126-98-7 | 8015 | 13.5 | 0.25 | 0.37 | 0.41 |
| Methyl ethyl ketone | 78-93-3 | 8015 | 12.4 | 0.17 | 0.14 | 0.73 |
| Methyl methacrylate | 80-62-6 | 8015 | 19.5 | 0.14 | 0.55 | 0.15 |
| 4-Methyl-2-pentanone | 108-10-1 | 8015 | 20.2 | 0.15 | 0.20 | 0.45 |
| Propionitrile | 107-12-0 | 8015 | 9.9 | 0.70 | 0.07 | 6.0 |

(a) Defined by the Battelle generated Single Laboratory Method Validation Protocol as the Concentration that produces a signal-to-noise ratio of 5:1.

(b) Purging efficiency defined as the ratio of peak areas from purging and DLI of identical amounts of a compound.

(c) Calculated from DLI Instrument Detection Limit and purging efficiency as follows:

$$\text{Estimated Method Detection Limit} \quad \frac{\text{Instrument Detection Limit } (\mu g/mL) \times \text{Spiking Volume } (3\ \mu L)}{\text{Purging Efficiency} \times \text{Purge Water Volume } (5\ mL)}$$

(d) Data obtained from preliminary results in Contract Number 68-03-3224, Work Assignment 2-09.